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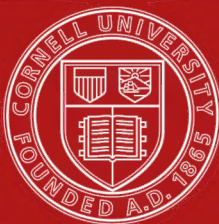
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CONTRIBUTIONS
TO THE
ANNALS OF MEDICAL PROGRESS
AND
MEDICAL EDUCATION
IN
THE UNITED STATES
BEFORE AND DURING
THE WAR OF INDEPENDENCE.

BY
JOSEPH M. TONER, M. D.

A.20535

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., October 27, 1874.

SIR: I have the honor to recommend the publication of the accompanying manuscript, prepared by J. M. Toner, M. D., founder of the Toner lectures in Washington, a writer on several important medical topics, and president of the American Medical Association.

This compilation of biographical and historical notes concerning the physicians of the colonial times and the early days of American independence was undertaken by Dr. Toner at the request of the Convention of School-Superintendents which met in Washington in 1872, (to consult with regard to the exhibition of the United States system of education at Vienna,) with a view to its forming a part of that complete representation of the rise and progress as well as present condition of the system of education in the United States, professional and preparatory, which was thought desirable for the Vienna Exhibition.

The difficulties attending a compilation from such scattered and varied sources prevented its completion in season for Vienna. Prepared during the intervals of active professional work, it makes no claim to a methodical or exhaustive treatment of the subject; it however furnishes a mass of biographical and historical information now for the first time collected, which must make it a valuable contribution towards a history of the rise and progress of medical culture in this country, and most useful to other inquirers in the same field. Its brief biographies of the early medical practitioners show how often the learned professions were united in the same learned man, who was at once physician, pastor, and teacher, and how medical science was at first traditional, the old practitioner instructing his one or two student-assistants in his own theories and methods and they in turn handing them down, with the added results of their own experience, to their successors.

The importance of correct methods of training for this profession, to whose care more or less directly are committed the lives and health of all our people, cannot be overestimated. This compilation furnishes the first steps for all who would pursue the instructive lessons of experience to their conclusion. It is also specially timely as an aid in presenting at the Centennial Exhibition the growth of this profession during the colonial period of our country's history. It is to be hoped

that some equally intelligent and enthusiastic investigator will do for the past century what Dr. Toner has attempted for the period comprised in his own researches.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

Hon. C. DELANO,
Secretary of the Interior.

Approved and publication ordered.

C. DELANO,
Secretary of the Interior.

In response to the request of eminent educators, the following record and notes, which I have made, from time to time, on the rise and progress of medical culture during the earliest years of the settlement of this country, are furnished, rather as memoranda for the use of those interested in similar studies, than as an attempt to push investigation to their conclusions or to follow exactness of method.

As the medical profession must always occupy an important, if not a conspicuous, position in the scientific and educational history of a nation, the present is deemed an opportune occasion to group together in a brief review some of the more notable names of medical men and important events in the history and progress of medicine in the United States, from the period of the first settlements to the close of the colonial governments, and in some instances down to the commencement of the present century.

LACK OF EARLY LEGISLATION.

For the first century, after successful settlements had been made on this continent, medicine, as a distinct branch of education, received but little consideration from legislators, and, as a profession and an art, was left wholly without protection, encouragement, or recognition.

The school-house everywhere accompanied the pioneer, and academic institutions promptly sprang up in the interest of the various denominations, and achieved reputation in not less than eight distinct settlements before the Revolution.

But up to this period only two attempts to establish medical colleges had been made, and from these less than fifty young men had been graduated as bachelors and doctors of medicine. Many of the causes influencing this backwardness in home-professional education are apparent in the dependent attitude of the colonies and the state of the profession in both hemispheres.

REASONS OF INACTION.

But few physicians were required by the healthy and laborious people of steady habits, who first came to our shores. The sparseness of the population, which was gradually subduing the forest and planting settlements on the bays setting up from the Atlantic and along the rivers emptying into them, gave but little encouragement to the professional man.

So intently occupied were the first immigrants with the struggle to obtain the necessities of life, surrounded as they were by unfriendly tribes of natives and in a rigorous climate, that they had no time to think of medical matters, however important these things were.

might be to the preservation of their health and the securing of final success in their endeavors.

Education, particularly professional, requires means and leisure for its encouragement and a reasonable prospect of remunerative employment. It is true, the immediate wants of the colonists, arising from sickness or accidents, were in a measure provided for by physicians who accompanied the early pioneers of civilization to these shores.

MEDICAL PIONEERS IN VIRGINIA.

Among the early settlers that came to Virginia and founded Jamestown in 1607 was Dr. Thomas Wootton,¹ surgeon-general of the Company. The doctor was among those who suffered severely from lack of food, living for a considerable time on crabs and sturgeon.² In 1608 Dr. Walter Russell is mentioned as being with Captain Smith and rendering him professional services during the making of the survey of Chesapeake Bay and the Potomac River. He attended an Indian chief,³ who had been shot in the knee, a brother of Hassininga, king of one of the four nations of the Mannahocks.

This expedition, consisting of Captain Smith, Dr. Russell, and thirteen of the crew, after surveying the Chesapeake Bay, proceeded up the Potomac River to the Falls, some few miles above where now stands Washington City, the Capital of the United States.

In 1608 Anthony Bagnall⁴ was surgeon at the fort and for the settlers at Jamestown and vicinity. Some idea of the special perils attending a professional life in the New World at that day may be inferred from the fact that on one of his visits to a patient he was shot at by the Indians, the arrow passing through his hat.

The residence of these physicians is presumed not to have been permanent, as Captain Smith, the president of the Virginia Company, returned to England in 1609 for surgical treatment, "for there was neither chirurgeon nor chirurgery at the fort."⁵

Dr. Lawrence Bohun studied his profession in the Low Countries, where the leading medical schools of that period were located, and found his way to Virginia as early as 1610, and in 1611 is mentioned as physician-general of the colony. In March of that year, Lord Delaware, who was seriously ill, sailed from Virginia to the West Indies for his health, accompanied by Dr. Bohun. The doctor was killed in a naval engagement with a Spanish man-of-war,⁶ and was succeeded in office by Dr. John Pot,⁷ who was elected (on the recommendation of Dr. Gulstone) physician-general of the Company, and the same year removed to the colony, of which he was made temporary governor in 1628.⁸

¹ Stith's History of Virginia, p. 48.

² Stith's History of Virginia, p. 62.

³ Stith's History of Virginia, p. 71.

⁴ Stith's History of Virginia, p. 74.

⁵ Stith's History of Virginia, p. 106.

⁶ Stith's History of Virginia, p. 188.

⁷ Stith's History of Virginia, p. 188.

⁸ History of the Virginia Company of London, p. 182.

These were some of the physicians of distinction, and I might add the names of others who practiced in Virginia before the Pilgrims landed at Plymouth.¹

Dr. Green practiced in Gloucester County, Virginia, and died in 1676, in the same house where General Bacon, of Bacon's rebellion, died. Many of the early physicians who came to Virginia, as well as those who first came to the other colonies, held some official position, either at a fort with the army or in the navy of the country governing the settlements. It is also a noticeable fact that many of the ships, perhaps all, trading with the settlements in the New World in the seventeenth century, carried with them a surgeon. This was rendered necessary on account of the length of the voyage and the time expended in disposing of and collecting new cargoes. These surgeons were permitted while the ships were in port to practice among the people on shore. When the encouragement was sufficient, no doubt some of them remained or, returning, resided permanently.

Dr. William Cabell, a native of Great Britain, was educated to the profession of medicine; came to America between 1720 and 1724. He settled on the James River, at a place known as Liberty Hall, in Nelson County, and was a man of enterprise, wealth, and of great influence in the State. He died April 12, 1774, aged 87.

The earliest law passed having special reference to the medical profession was "An act to compel physicians and surgeons to declare on oath the value of their medicines," enacted October 21, 1639, which was revised and amended at the session of 1645-'46, and again at the session of 1657-'58. (Hening's Stat. Va., vol. i, pp. 316, 450.)

John Mitchell, M. D., F. R. S., removed from England to Virginia about the year 1700 and located at Urbana, a small town on the Rappahannock River. He was eminent as a botanist, as well as a physician; and, besides numerous communications to the Royal Society, he published a work on botany, a history of the contest in America, (printed in 1755,) and a treatise on the yellow fever. The manuscript of the latter having fallen into the hands of Dr. Franklin, he transmitted it to Dr. Rush, at the time that yellow fever was epidemic in Philadelphia; and, from the valuable suggestions contained in it, Dr. Rush was led into a new train

¹ Upon examining the colonial laws and enactments, I find the following statutes relating to medicine and hygiene enacted in the colony of Virginia prior to the establishment of the present form of government, the titles only of which have been introduced as affording interest to the reader: An act regulating chirurgeons' accounts, enacted 1662, Hen. Stat. Va., vol. 2, p. 109; An act allowing chirurgeons' accounts to be pleaded after decease of the party, enacted 1662, Hen. Stat. Va., vol. 2, p. 109; An act relating to physicians' and chirurgeons' accounts, enacted 1691, manuscript-ed. Stat. Va., p. 15; An act to oblige ships coming from places infected with plague to perform their quarantine, enacted 1722, Stats. Va., ed. 1769, p. 67; An act for regulating the fees and accounts of the practitioners of physic, enacted 1736, Hen. Stat. Va., vol. 4, p. 509; An act to regulate the inoculation of small-pox within the colony, enacted 1769, Stat. Va., ed. 1785, p. 11; An act amendatory to the foregoing act, enacted 1777, Stat. Va., ed. 1785, p. 164.

of reflections which resulted in his successfully combating the distemper in Philadelphia in 1793. Dr. Mitchell died about 1772.

James Craik, M. D., came to America, probably with Braddock's army, and served as a surgeon throughout the French and Indian war. He was born in Scotland in 1730 and was educated for the medical staff of the British army. He was with General Braddock at the time of his defeat and assisted in dressing his wounds. While in the army, he formed with General (then Colonel) Washington an acquaintance which ripened into a friendship that continued through life.

At the breaking out of the revolutionary war, Dr. Craik tendered his services to the American Army and after the surrender of Yorktown was appointed director-general of the hospital at that place. At the close of the war he was persuaded by Washington to settle at Alexandria, near Mount Vernon. He remained the physician and friend of the general, and was with him at the time of his death. To him Washington refers in his will, calling him "my compatriot in arms; my old and intimate friend." He died in Fairfax County, Virginia, February 6, 1814.

Dr. Walter McClurg was a successful practitioner in Elizabeth City, Va., about the middle of the year 1750.

Hugh Mercer, a native of Scotland, was educated as a physician, and, having emigrated to this country, settled in Virginia. He served in the French and Indian war and, being wounded at Fort Du Quesne, barely escaped capture by the enemy. He entered the American Army at the commencement of the Revolution, and, having distinguished himself in various battles, was made brigadier-general. During the action at Princeton, on the 3d of January, 1777, while endeavoring to rally his retreating troops, his horse was shot from under him and he severely wounded by the British troops, who surrounded and stabbed him with their bayonets. He died January 19, 1777, and was buried at Philadelphia.

Dr. John Spencer was born and educated in Scotland. He was an alumnus of the University of Edinburgh. Arriving in America towards the close of the last century, he settled at Dumfries, Va., where he obtained a large and lucrative practice.

Dr. Andrew Leiper was a resident of Richmond, where he died, October 17, 1798.

VIRGINIA SURGEONS IN THE REVOLUTIONARY WAR.

The following physicians of Virginia served in the Continental Army in their professional capacity, as I find from the historical records of the Revolution :

Cornelius Baldwin, Thomas Chrystie, Mace Clements, Joseph Davis Charles Land, Bazel Middleton, George Monroe, Robert Rose, Joseph, Savage, Alexander Skinner, Nathan Smith, John Tresvant, Claiborne Vaughn, James Wallace, and George Yates.

Surgeon David Gould died July 12, 1781.

William Graham was surgeon's mate of Colonel Alexander Spotswood's regiment.

James McClurg, M. D., a native of Virginia, graduated in medicine from the University of Edinburgh in 1770. He practiced at Richmond, Va., and established his name as a surgeon of high repute in the revolutionary war.

Dr. Alexander Lajournade was commissioned surgeon's mate, March 15, 1778, to Col. Charles Harrison's Virginia and Maryland Artillery.

Dr. Robert Macry was surgeon in the Eleventh Virginia Regiment, November 13, 1776.

Dr. Shuball Pratt was surgeon in the Virginia Line, March 12, 1778.

Dr. John Roberts was appointed surgeon's mate in 1776 and promoted to surgeon the following year.

Dr. Jonathan Calvert was commissioned surgeon's mate November 30, 1776, in Col. Charles Harrison's Virginia and Maryland regiment of artillery.

Dr. James Carter, of Williamsburg, Va., was in 1765 complimented by a vote of thanks and £50, by the president of William and Mary College in Virginia, for his valuable services to the professors and students when they were suffering from the small-pox.

Dr. William Carter, a native of Virginia, pursued his profession at Richmond, Va., where he died, 1798. He was surgeon to the hospital located at Williamsburg, Va., during the revolutionary war.

Dr. Thomas Chrystie served in the capacity of surgeon from April 1, 1778, to the close of the war.

John Clayton, a native of England, was educated to the profession of medicine, came to America early in the eighteenth century, and settled to practice in Gloucester County, Va., where he spent the remainder of his life, dying December 15, 1773. He was eminent in his profession and one of the leading botanists of the time.

Dr. Stephen Cooke was a surgeon in the revolutionary war and was taken prisoner and sent to Bermuda, where he married. He returned to Virginia, and practiced in Loudoun County, Va., until his death, which occurred March, 1816.

James Currie, a native of Scotland, received his diploma at Edinburgh. He emigrated, and practiced with reputation his profession for a long series of years at Richmond, Va., where he died April 23, 1803, aged 63.

Dr. John Baynham was a practitioner of note in Caroline County, Va., during the early and middle part of the eighteenth century.

Dr. William Baynham acquired distinction as a surgeon in Virginia. He resided most of his life in Essex County, dying in the year 1814, aged 65.

Dr. John Minson Galt, of Williamsburg, Va., was a physician of eminence. He was the first physician placed in charge of the lunatic-asylum established by the State in that town. He occupied the posi-

tion of surgeon in the hospital located there during the revolutionary war. Some of his descendants have distinguished themselves in medicine.

Dr. Cabin Griffin, born in Virginia of Welsh descent, practiced in Yorktown.

His brother, Cyrus Griffin, was the last president of the Continental Congress.

Dr. Joseph Harding practiced with success at Portsmouth, Va., during the latter half of the eighteenth century.

Dr. Walter Jones, a native of Virginia, a physician of brilliant powers and abilities, practiced in Northumberland County, Va. He died in 1815, aged 70.

Dr. Ezekiel Bull, of Virginia, was a surgeon in the Revolution. He died, in 1819, at a very advanced age.

David Griffith was commissioned by the Continental Congress surgeon and chaplain of Colonel William Heth's regiment and was authorized to draw pay in both capacities.

Surgeon William Rumney received from the State of Virginia a grant of six thousand acres of land in recognition of his services, as did also Surgeon Charles Taylor.

To this list of worthies might be added a host of others who served with distinction in Virginia during the colonial and revolutionary wars.

MEDICAL PIONEERS IN MASSACHUSETTS—SEVENTEENTH CENTURY.

Dr. Samuel Fuller, the first physician and surgeon in New England, came to Massachusetts in the Mayflower. He died in 1633, at Plymouth, of a distemper contracted while attending patients suffering from a contagious disease. His wife at a later period was held in esteem as a midwife.¹

A little later we find the names of other physicians who practiced the healing art throughout the colony. Giles Firmin practiced in Boston in 1634. In 1638 he received a grant of 120 acres of land at Ipswich.

John Fisk² settled at Salem in 1637, and was not only a physician but also school-teacher and clergyman.

Dr. William Gager accompanied Governor Winthrop to Boston, where he practiced many years, and his death was the cause of much regret to the good people of Boston.

Dr. Comfort Starr, originally of Cambridge, removed to Duxbury, Plymouth County, in 1638, and then to Boston, where he died in 1660.

Samuel Bellingham and Henry Saltonstall,³ graduates of Harvard in 1642, studied medicine and received the degree of M. D. in European universities.

Leonard Hoar, M. D., an alumnus of the Harvard class of 1650, received his medical degree in Europe. He also studied theology, and

¹ Russell's *Recollections of the Pilgrims*, p. 246.

² Felt's *Annals of Salem*, p. 427.

³ Thacher's *Medical Biog.*, pp. 17, 18.

settled as a minister in Sussex, England, but was rejected for non-conformity. He was subsequently for two years president of Harvard College, having been elected in 1672, shortly after his return to America. He died at Quincy, November 28, 1675, aged 45 years.

John Glover, having graduated at Harvard in 1650, went to Europe, where he received his medical degree at Aberdeen, Scotland. On his return he settled as a physician at Roxbury.

Isaac Chancy and John Rogers, qualified as ministers, also received their medical degrees in Europe and on their return to America engaged chiefly in the ministry. The latter was president of Harvard College (at which institution he had graduated in 1649) from 1682 to 1684, when he died, aged 53 years.

Charles Chauncy, who was appointed president of Harvard College in 1654, had a medical education. He retained that position until his death, in 1672. Six of his sons, educated at the college, studied medicine.

Matthew Fuller practiced medicine in Plymouth from 1640 to 1653, when he removed to Barnstable, at which place he died in 1678. He was surgeon-general of the provincial forces in 1673.

Thomas Starrs, of Yarmouth, as early as 1640 was styled chirurgion. Samuel Seabury, chirurgion in Duxbury from an early date, died in 1680.

Thomas Oliver¹ was in practice in Boston about 1640.

In March, 1629, John Pratt was proposed to the court of assistants in London as a surgeon to the Salem Plantations, upon the following conditions: "That £40 should be allowed him: for his chest, £25, and the residue for his own salary for the first year."²

At the same meeting the company agreed with Robert Morley, servant of Mr. Andrew Mathews, late barber-surgeon,³ to serve the company in New England three years, the first year to have twenty nobles, &c. It is much to the credit of those connected with these early settlements in America, that, in most, if not all of them, provisions were made to give succor to the sick.

¹ Winthrop's Journal.

² Felt's Annals of Salem, vol. 1, p. 62.

³ The person entitled to the appellation of surgeon in ancient times, as at present, is often also entitled to that of physician, as is the custom with medical officers in military service.

The term "surgery," or "chirurgery," is derived from the Greek *χείρ*, the hand, and *εργον*, work, and has been applied to that branch of medicine which effects cures through manipulations, the use of instruments, appliances, topical remedies. In the earliest times of which we have an account, the surgeon was an assistant to the physician, the former exercising his art under the direction of the latter. But it early became separated, as, in the oath of Hippocrates, it appears lithotomy was forbidden to the physician. The Arabian physicians thought it beneath their dignity to perform surgical operations. The Romans left this practice to their slaves. Medicine in the infancy of every people or nation is found in the hands of the priests and is largely mixed up with superstitious rites. In Egypt, India, China, Japan, and among savages and even half-civilized tribes in different countries, the healing art is always largely associated

John Clarke, an English physician of eminence, came to Boston in 1638, where he died, in 1664, at the age of 66. An oil-portrait of him is in the possession of the Massachusetts Historical Society.

His eldest son, John Clarke, also a physician, died at Boston, in 1690.

John Wilson, son of Rev. John Wilson, pastor of the first church

with the supernatural. The earliest surgeons of which there is any record were the Egyptian priests; and Mr. Kenrick says that "on the walls of the ruined temples of Thebes *basso-relievos* have been found displaying surgical operations and instruments not far different from some in use in modern times." The skill of the early physicians in embalming the bodies of the dead is conceded by all historians to have been great. In Greece, surgery is as old as her mythical period of history. According to Grecian poets, fifty years before the Trojan war, (1242 B. C.,) Melampus, Chiron, and his disciple Esculapius, accompanied an expedition as surgeons. In the Trojan war two sons of Esculapius—Machaon and Podalirius—took care of the wounded Greeks. Venesection and circumcision were among the earliest surgical operations of which we have any account. The Asclepiades are represented as descendants or followers of Esculapius, the son of Apollo, who was deified on account of his great skill in medicine, about fifty years before the Trojan war. Damocedes was eminent as a surgeon, (600 B. C.,) and, being taken prisoner by the Persians, reduced the dislocated ankle of Darius and cured the cancerous breast of his queen, Atosa, after the Egyptian physicians had failed. As might be expected, the want of exact anatomical knowledge retarded progress. The founding of the Alexandria school, under Ptolemy, (300 B. C.,) led to the study of anatomy. Herophilus and Erasistratus were eminent teachers in this university, and are said to have inaugurated the practice of dissecting the human body. It is probable that the use of the tourniquet, the catheter, the crushing of stone, and the mode of extirpating tumors were invented by them or their pupils. Galen practiced both medicine and surgery at Rome in the latter half of the second century. The history of the advance of surgery in the different countries of Europe since the Christian era is much the same.

The term "barber-surgeon" became common at a time when the art of surgery and the art of shaving were performed in England, France, and other countries by the same person. In former times surgery was ranked as the third branch of medicine.

The title "surgeon" or "chirurgeon" first appears to have been recognized by law in England in 1299. The title "barber-surgeon" is much older, probably originating during the early or Middle Ages among some of the communities of the shaven priesthood, which was for many centuries an educated, numerous, and influential order in France and Great Britain. Long anterior to this period, however, it was common for the art of the surgeon and of the physician to be exercised by the priests. This is evident from the fact that in 993 the fourth Lateran council prohibited the regular clergy from performing any operation in surgery "involving the shedding of blood." Operations with the knife after this were assigned chiefly to seculars and clerks, the chief part naturally falling to the tonsorial craft, who were in daily attendance on the priest-physicians; and the barbers, from their vocation, possessing the necessary skill in the use of sharp instruments, were naturally assigned to this duty, under the direction of the priests. Their ambition and their habit of rendering personal services suited them to perform the duties devolving upon a chirurgeon of that period. The priests were not at that time prohibited from practicing medicine. In 1131 the seventh Lateran council forbade the monks and regular canons pursuing the study of civil law and medicine. But the council of Tours, in 1163, finding that the practice of surgery was still to some extent followed by the clergy, they were positively interdicted from all surgical operations. This regulation still further tended to throw business into the hands of the barber-surgeons and apothecaries. In France a company of barber-sur-

built in Boston, was born in 1621, and graduated from Harvard College, in 1642, at the first class-commencement of that institution. He was shortly afterward installed minister of Medfield, and acted for the community in which he lived, as pastor, school-master, and physician, until his death, August 29, 1691.

geons was formed in 1096. They were at the same time keepers of the baths, and for several centuries retained possession of this branch of medicine.

In Great Britain, early in the fourteenth century, the barber-surgeons became influential as a class and their services important to the kings. The first assembly of the craft in England was composed of Roger Strippe, W. Hobbs, T. Goddard, and Richard Kent, since which time they built their hall in Monkwell street. Entries and records relating to the company from 1309 to 1377 are to be seen in their books at the Guildhall Chamber; also the by-laws of the company in 1387 and an act of Parliament of 1420 relating to the company.

In the second expedition against France, in 1417, Thomas Morestide and William Bredewardyn were empowered by a warrant from the king to press as many surgeons and instrument-makers into their service as they could find in the city of London or elsewhere. The barber-surgeons were once an important company in the city of London, and were then the chief if not the only operating surgeons. This company was formed some time previous to its incorporation, through the influence of Thomas Mores-tide, esq., one of the sheriffs of London, in 1436. He was chirurgeon to three kings of England, Henry IV, Henry V, and Henry VI, and died in 1450.

Jaques Fries and William Hobbs, physicians to Edward IV in 1461, along with the prince and his brother Gloster, under the patronage of St. Cosme and Damianus, became founders of the corporation or brotherhood, under the name of the Masters or Governors of the Mystery or Commonalty of Barbers of London. The charter bears date February 24, 1461, and has the royal seal in green wax. From this period the barber-surgeons are known to have conducted the business with regularity as a body corporate.

There was a distinction observed in the robe or dress of the chirurgeon proper (who had also studied physic) and the barber-chirurgeon. The former was, therefore, allowed to wear the long robe, or gown, and a particular style of cap.

By virtue of the first act of Parliament, persons (not barbers) were admitted to the practice of surgery without possessing the proper qualifications, so that the surgeons and barbers in the third year of Henry VIII, 1512, obtained an act of Parliament to prevent all such persons from practicing surgery within the city of London and seven miles of the same. This latter condition is a privilege enjoyed and enforced by the Royal College of Physicians of London at the present day. Holbein has commemorated in a fine painting the event of Henry VIII delivering the charter to the barber-surgeons, the court of assistance, and the company. This picture, which is 10 by 6 feet, still in good condition, is preserved in the company's hall in Monkwell street. An engraving of it was made by B. Barron, in 1726, the plate of which is preserved by the company, with many other paintings of historical value to the profession. The surgeons who were present at the reception of the charter occupy positions in the picture and are represented as dressed in gowns trimmed with fur. Their names are painted on their persons. Thomas Vicary, (then master,) John Chambre, William Butts, and J. Alsop, who at the time were past-masters, are placed on the right of the king, who is seated in his royal robes and crowned. On his left are Thomas Vicary, J. Aylef, N. Symson, E. Harman, J. Monforde, J. Pen, N. Alcocke, B. Fereis, W. Tylyby, and X. Samon.

T. Vicary is reputed to have been the author of the first work on anatomy written in the English language.

In 1515, the sixth year of Henry VIII's reign, the practicing barbers or surgeons, numbering 19, were, "in consideration of their constant attendance upon patients,

Thomas Boylston, father of the distinguished Dr. Zabdiel Boylston, was born at Watertown, January 26, 1637, and subsequently settled, as a physician and chirurgeon, at Brookline, of which town he was unquestionably the first resident physician. He died in 1695.

The first person executed in Massachusetts Bay Colony was Margaret exempted by Parliament from serving in ward- or parish-offices, but likewise from all military service." The surgeons, increasing in number, in time erected themselves into an independent or separate society from the barbers. Representing to Parliament the embarrassments they were laboring under, the subject was taken under consideration, and, for the mutual interests of each, an act was passed under the appellation of the Masters or Governors of the Mystery or Commonalty of Barbers and Surgeons of London. This act strictly enjoined all persons practicing the art of shaving not to intermeddle with that of surgery, except what belongs to the drawing of teeth; so does it likewise all surgeons from following the practice of shaving.

In 1544 Parliament again took the subject into consideration to promote the practice of surgery and medicine, and to encourage all persons skilled in the nature of herbs, roots, and waters to exert themselves in the exercise thereof for the relief and cure of wounded and distressed objects of compassion; and, among other things, provided for each of the arts of shaving and surgery, "that the said mystery, and all the men of the same mystery of the same city, should be one body and one perpetual community, and that their principals of the same commonalty of the most expert men in the mystery of surgery might, with the assent of twelve, or eight persons at the least, of the same community, every year elect and make out of their community two masters or governors, with authority to make statutes and ordinances for the government of the said mystery," &c.

This act at once united, and at the same time separated, the two crafts, one being commonly called The Barbers of London, the other The Surgeons of London. The company of surgeons built a new and elegant hall in the Old Bailey, where they had a large theater and a dissecting-room for teaching anatomy.

The College of Physicians of London was founded in 1518 and fully established by law in 1523; "that the movers and procurers of so good a fellowship for the safety of the lives of men may be preserved, and the causes that moved the King to grant it may be known, they are both signified to us in the King's letters-patent, where it appeareth that this suit was made by John Chambre, Thomas Lindere, and Fernandes de Victoria, all the King's physicians; and three other physicians, namely, Nicholas Hallowell, John Francis, and Robert Yearly, and chiefly by the intercession of Cardinal Wolsey, lord chancellor."

On the 15th of August, 1630, Charles I confirmed the rights and privileges granted by former patents and acts of Parliament, and gave to this company the right to make by-laws for the government and order of the society, in such manner and under such restrictions as therein mentioned, and "to make annual elections of masters or governors of the said commonalty, whereof two are to be professors in the art and science of surgery; and also to elect ten of the freemen of the society to be examiners of the surgeons of London during their lives."

The Barber-Surgeons' Company of London possess a curious and valuable memorial in the form of a silver cup, partly gilt, the stem and body representing an oak-tree, from which hang acorns fashioned as little balls. The style is in allusion to the celebrated tree that sheltered Charles at Boscobel. The cover of the cup represents the royal crown of England. The cup was made by order of Charles II and by him presented to the company, Charles, (afterward Sir Charles Scarborough,) chief physician to the King, being the master of the company at the time.

The *barbiers-chirurgiens* were separated from the *barbiers-perruquiers* in France, in the time of Louis XIV, and made distinct corporations.

Jones, a physician and doctress. Being charged with witchcraft, it appeared upon examination "that she had such a malignant touch, as many persons were taken with deafness or vomiting, or other violent pains or sickness; her medicines, though harmless in themselves, yet had extraordinarily violent effects; that such as refused her medi-

By the year 1745 it was pretty generally recognized that the two arts which the company professed were foreign to and independent of each other; and by an act of Parliament, (No. 18, George III,) to take effect June 24, 1745, entitled "An act for making the surgeons and barbers of London two distinct and separate corporations," they were so separated.

Lord Thurlow, in the House of Peers, July 17, 1797, in his speech opposing the surgeons' incorporation bill, said that, "by a statute still in force, the barbers and surgeons were each to use a pole. The barbers were to have theirs blue and white, striped, with no other appendage; but the surgeons, whose pole was the same in other respects, were to have a gallipot and a red flag in addition, to denote the particular nature of their vocation."

Anterior to the art of printing, the barbers, or rather the barber-surgeons, are represented in different illuminated manuscripts as using a pole colored red. It is probable that the origin of the pole was from the fact that the barbers, in practicing phlebotomy, caused their patients to extend the arm and grasp a small pole or cane to steady the arm and make the blood flow more freely. Convenience suggested a pole for this special purpose; and, to prevent its being stained, it was painted red. Such a pole was hung out at the door, with the white bandages wound around it, as a symbol of their vocation. This practice, no doubt, led to painting the pole in various colors and stripes, as red and white, blue and white, and, perhaps, red, white, and blue.

Prior to the late rebellion, the colors used on barbers' poles in the United States were red and white only. It is a noticeable fact, however, that the patriotism of the barbers of the country during the war with the South has induced them to adopt almost universally the national colors for their poles, so that now they are mostly striped with red, white, and blue.

In Constantinople the barbers still act as surgeons and dentists, and weave the teeth they have drawn, along with beads, into fanciful designs, and exhibit them at the doors and windows. Some barbers of London, even at the present time, exhibit, in their windows, the teeth they have drawn, as a sign that pulling teeth is a part of their business. During the late war, a barber by the name of Striker had a shop on Seventh street, in Washington City, opposite the Patent-Office, and used to keep hanging at his door and windows, and in several places in his shop, long strings of human teeth that he had drawn, to remind persons that, in addition to shaving and cutting hair, he professed the art of drawing teeth.

There are in the United States but four vocations with which I am acquainted that adopt symbols instead of lettered signs or the exhibition of some implement of their craft or manufacture as a mode of announcing business. These are the barber, the pawnbroker, the tea- and spice-dealer, and the tobacconist. The latter has adopted the figure of an Indian in costume, and is the only one of the four originating in America. The symbol of three balls, which constitutes the pawnbrokers' sign, is taken from the coat of arms of the Medici family, who for centuries were leading physicians in Italy, and subsequently became wealthy bankers, but retained on their coat of arms the sign of three pills, in proud recollection of their ancient vocation. The tea- and spice-dealers have adopted the figure of a Chinese in native costume, indicative of the country from which the goods they offer for sale are brought.

For the information in this note I am indebted to Entick's and also to Allen's History of London, Rowland on the Human Hair, Larwood's History of Sign-boards, and to numerous encyclopedias and other works.

cines she would tell that they would never be healed, and accordingly their diseases and hurts continued with relapses against the ordinary course, and beyond the apprehension of all physicians and surgeons."

Another doctress, a Mrs. Hutchinson, who resided in Boston about the year 1637, had the reputation of being a very skillful midwife. She was banished from the colony, however, for agitating measures against the state.

John Alcock graduated from Harvard in 1646, pursued the study of medicine and practiced in Roxbury, his native town, until his death in 1667, in the forty-second year of his age.

The second physician of Weymouth was Dr. Beal, who began practice there about 1633. Tradition says that his practice and reputation were good.

Samuel Alcock, brother of Dr. John Alcock, was born at Roxbury, and settled at Boston as a chirurgeon. He died March 16, 1677, at the age of 39 years.

Benjamin Tompson, son of Rev. William Tompson, resided at Roxbury, where he enjoyed considerable local celebrity as a physician, schoolmaster, and poet. He was born at Braintree, July 6, 1642, graduated from Harvard in 1662, and died April 13, 1714.

A noted midwife of Boston was Ruth Barnaby, who practiced her calling in that town for more than forty years. She was born at Marblehead, in August, 1664, and died February 12, 1765, aged 101 years. During the revisitation of the small-pox in 1764, although over 100 years old, she insisted on being inoculated, and thus escaped the loathsome disease, notwithstanding several members of her family contracted it.

Robert Child, a native of England, but educated at Padua for the medical profession, immigrated to Massachusetts as early as 1644 and located at Hingham. In 1646 he and others were fined for protesting against the union of the church and state. Dr. Child prepared to sail for Europe, in order to lay his case before Parliament; but the court, anticipating his design, caused him to be apprehended, and, adjudging him guilty of contempt, quadrupled his former fine and ordered his imprisonment until payment was made. His original intention in coming to this country was to explore the mineral resources of the New World. He was a very learned man, for the times, and his bitterest opponent, Governor John Winthrop, spoke of him as "a man of quality, a gentleman, and a scholar."

Among the immigrants to New England in 1650 was Dr. William Avery, a native of England and a subsequent benefactor of Harvard College. He settled at Dedham, but afterward removed to Boston, where he died, March 18, 1686, aged 65 years.

Edward Winslow, at one time governor of Massachusetts, was born in Worcestershire, England, and died of fever, near the isle of Jamaica.

May 8, 1655. It appears that he possessed a knowledge of medicine, "for, having visited Massasoit and finding him very sick, he prescribed for him, curing his affliction, which so pleased the king that he disclosed a plot of the Indians for the destruction of the colony." It is also incidentally mentioned of him that he was at Leyden previous to his immigration to this country.

Daniel Allen, son of Rev. John Allen, the first minister of Dedham, was born in 1656 and graduated from Harvard in 1675. He received a medical education and resided in Boston, where he probably practiced his profession. He was librarian of the college-library at the time of his death, which occurred in 1692.

Jonathan Avery, son of Dr. William Avery, was born in Boston; and in his will, made in May, 1691, he describes himself as "a resident of Dedham, a practitioner of physic, aged 35 years." A tradition existed among the doctor's descendants that he was a believer in alchemy and spent much of his time in chemical studies.

In 1662 Dr. John Touton, a native of Rochelle, in France, applied to the general court of Massachusetts for the privilege of settling in the colony for himself and fellow-Protestants.

Dr. Oliver Noyes, a representative of Boston, died in 1721, aged 48 years. He graduated from Harvard in 1695 and was highly esteemed.

Benjamin Bullivant, a gentleman of noble family, practiced medicine in Boston in 1686, and became distinguished for skill in his profession, and as a pharmacist had no equal in Boston. He was an excellent scholar, was appointed attorney-general, and discharged the trust with credit. He was one of the wardens of the first Episcopal church built in Boston.

Benjamin Ware, a physician of Wrentham, was born in that town July 8, 1688, and died January 18, 1744, much respected as a physician and citizen.

Dr. Nathaniel White was born in Weymouth in 1690 and died in 1758, having held a good reputation and practice and during life discharged several public trusts to the satisfaction of the people.

Dr. Francis Lee Baron practiced medicine in Plymouth from 1693 to 1704, the date of his death.

Nathaniel Phillips resided in Boston at an early date, and kept an apothecary-shop in Orange (now Washington) street, at the corner of Bennet.

Thomas Thacher, (usually spelled Thatcher,) who came to New England in 1635, was educated in medicine as well as theology, and his duties as a physician occupied much of his time. He was made minister of Weymouth in 1644, but accepted a pastorate in Boston at a later period. His professional career is distinguished by the publication, in 1677, of the first contribution to medical literature in America, under the title of a "Brief Rule to Guide the Common People of New England how to

Order themselves and theirs in the Small-Pocks, or Measels."¹ Dr. T.

¹ The article is printed in double column, on one side, as a poster, 15½ by 10½ inches, and reads as follows:

BRIEF RULE

To guide the Common People of

NEW-ENGLAND

How to order themselves and theirs in the

Small Pocks, or Measels.

The *small Pox* (whose nature and cure the *Measels* follow) is a disease in the blood, endeavouring to recover a new form and state.

2. This nature attempts—1. By Separation of the impure from the pure, thrusting it out from the Veins to the Flesh.—2. By driving out the impure from the Flesh to the Skin.

3. The first Separation is done in the first four dayes by a Feaverish boyling (Ebullition) of the Blood, laying down the impurities in the Fleшы parts which kindly effected the Feaverish tumult is calmed.

4. The second Separation from the Flesh to the Skin, or *Superficies* is done through the rest of the time of the disease.

5. There are several Errors in ordering these sick ones in both these Operations of Nature which prove very dangerous and commonly deadly either by overmuch hastening Nature beyond its own pace, or in hindering of it from its own vigorous operation.

6. The Separation by Ebullition in the Feaverish heat is over heightened by too much Clothes, too hot a room, hot *Cordials*, as *Diascordium*, *Gascons powder* and such like, for hence come *Phrenzies*, dangerous excessive sweats, or the flowing of the Pocks into one overspreading sore, vulgarly called the Flox.

7. The same separation is overmuch hindered by preposterous cooling that Feaverish boyling heat, by *blood-letting*, *Glysters*, *Vomits*, *purges*, or *cooling medicines*. For though these many times hasten the coming forth of the *Pox*, yet they take away that supply which should keep them out till they are ripe, wherefore they sink in again to the deadly danger of the sick.

8. If a *Phrensie* happen, or through a *Plethorie* (that is fulness of blood) the Circulation of the blood be hindered, and thereupon the whole mass of blood choaked up, then either let blood, Or else that their diet, or medicines be not altogether cooling, but let them in no wise be heating, therefore let him lye no otherwise covered in his bed than he was wont in health: His Chamber not made hot with fire if the weather be temperate, let him drink small Beer only warm'd with a Tost, let him sup up thin *water-gruel*, or *water-pottage* made only of Indian Flour and water, instead of *Oat-meal*: Let him eat *boild Apples*: But I

would not advise at this time any medicine besides. By this means that excessive *Ebullition* (or boyling of his blood) will by degrees abate, and the Symptoms cease; If not, but the blood be so enraged that it will admit no delay, then either let blood (if Age will bear it) or else give some notably cooling medicine, or refresh him with more free Air.

9. But if the boiling of the blood be weak and dull that there is cause to fear it is not able to work a Separation, as it's wont to be in such as have been let blood, or are fat, or *Flegmatick*, or brought low by some other sickness or labour of the (*Gonorrhea*) running of the Reins, or some other Evacuation: In such Cases, *Cordials* must drive them out, or they must dy.

10. In time of driving out the *Pocks* from the Flesh, here care must be had that the *Pustules* keep out in a right measure till they have attain'd their end without going in again, for that is deadly.

11. In this time take heed when the *Pustules* appear whilst not yet ripe, least by too much heat there arise a new *Ebullition* (or Feaverish boyling) for this troubles the driving out, or brings back the separated parts into the blood, or the Fleшы parts over-heated are disabled from a right suppuration, or lastly the temper of the blood and tone of the Flesh is so perverted that it cannot overcome and digest the matter driven out.

12. Yet on the other hand the breaking out must not be hindered, by exposing the sick unto the cold. The degree of heat must be such as is natural agrees with the temper of the fleshy parts: That which exceeds or falls short is dangerous: Therefore the season of the year, Age of the sick, and their manner of life here require a discreet and different Consideration, requiring the Counsel of an expert Physitian.

13. But if by any error a new *Ebullition* arise, the same art must be used to allay it as is before exprest.

14. If the *Pustles* go in and a flux of the belly follows (for else there is no such danger) then *Cordials* are to be used, yet moderate and not too often for fear of new *Ebullition*.

15. If much spitting (*Ptyalismus*) follow, you may hope all will go well, therefore by no means hinder it: Only with warm small Beer let their mouths be washed.

died of a contagious disease, at Boston, October 15, 1678, in the fifty-eighth year of his age.

16. When the *Pustules* are dryed and fallen, purge well, especially if it be in *Autumn*.

17. As soon as this disease therefore appears by its signs, let the sick abstain from Flesh and Wine, and open Air, let him use small Beer warmed with a Tost for his ordinary drink, and moderately when he desires it. For food use *water-gruel*, *water-pottage* and other things having no manifest hot quality, easy of digestion, boild Apples, and milk sometimes for change, but the coldness taken off. Let the use of his bed be according to the season of the year, and the multitude of the *Pocks*, or as sound persons are wont. In Summer let him rise according to custome, yet so as to be defended both from heat and cold in Excess, the disease will be the sooner over and less troublesome for being kept in bed nourisheth the Feaverish heat and makes the *Pocks* break out with painful inflammation.

19. In a colder season, and breaking forth of a multitude of *Pustules*, forcing the sick to keep his bed, let him be covered according to his custome in health, a moderate fire in the winter being kindled in his Chamber, morning and Evening: neither need he keep his Arms always in bed, or ly still in the same place, for fear least he should sweat which is very dangerous especially to youth.

20. Before the fourth day use no medicines to drive out, nor be too strict with the sick; for by how much the more gently the *Pustules* do grow, by so much the fuller and perfecter will the Separation be.

21. On the fourth day a gentle *Cordial* may help once given.

22. From that time a small draught of warm milk (not hot) a little dy'd with *Saffron* may be given morning and evening till the *Pustules* are come to their due greatness and ripeness.

23. When the *Pustules* begin to dry and crust, least the rotten vapours strike inward, which sometimes causeth sudden death; Take morning and evening some temperate *Cordial* as four or five spoonfuls of *Malago Wine* tinged with a little *Saffron*.

24. When the *Pustules* are dryed and fallen off, purge once and again, especially in the *Autumn Pocks*.

25. Beware of anointing with *Oils*, *Fatts*, *Ointments*, and such defensives, for keeping the corrupted matter in the *Pustules* from drying up; by the moisture, they fret deeper into the Flesh, and so make the more deep Scarrs.

26. The young and lively men that are brought to a plentiful sweat in this sickness, about the eighth day the sweat stops of it self, by no means afterwards to be drawn out again; the sick thereupon feels most troublesome disrest and anguish, and then makes abundance of water and so

dyes. Few young men and strong thus handled escape, except they fall into abundance of spitting or plentiful bleeding at the nose.

27. Signs discovering the Assault at first are beating pain in the head, Forehead, and temples, pain in the back, great sleepiness, glistening of the eyes, shining glimmerings seem before them, itching of them also, with tears flowing of themselves, itching of the Nose, short breath, dry Cough, oft neezing, hoarseness, heat, redness, and sense of pricking over the whole body, terrors in the sleep, sorrow and restlessness, beating of the heart, *Urine* sometimes as in health, sometime filthy from great *Ebullition*, and all this or many of these with a Feaverish distemper.

28. Signs warning of the probable Event. If they break forth easily, quickly, and soon come to ripening, if the Symptoms be gentle, the Feaver mild, and after the breaking forth it abate; If the voice be free, and breathing easie; especially if the Pox be red white, distinct, soft, few, round, sharp top'd, only without and not in the inward parts; if there be large bleeding at the nose. These signs are hopeful.

29. But such signs are doubtful, when they difficultly appear, when they sink in again, when they are black, bluish, green, hard, all in one, if the Feaver abate not with their breaking forth, if there be Swooning, difficulty of breathing, great thirst, quinsy, great unquietness, and it is very dangerous, if there be ioynd with it some other malignant Feaver, called by some the pestilential Pox: the *Spotted Feaver* is oft joyned with it.

30. Deadly Signs if the *Flux* of the Belly happen, when they are broke forth, if the Urine be bloody, or black, or the *Ordure* of that Colour; Or if pure blood be cast out by the Belly or Gums: These Signs are for the most part deadly.

These things have I written Candid Reader, not to inform the Learned Physitian that hath much more cause to understand what pertains to this disease than I, but to give some light to those that have not such advantages, leaving the difficulty of this disease to the Physitians Art, wisdom, and Faithfulness: for the right managing of them in the whole Course of the disease tends both to the Patients safety, and the Physitians desired Success in his Administrations: For in vain is the Physitians Art employed if they are not under a Regular Regiment. I am, though no Physitian, yet a well wisher to the sick: And therefore intreating the Lord to turn our hearts, and stay his hand, I am

A Friend, Reader to thy
Welfare,
THOMAS THACHER.

2, 11. 1677

The minister of Melton, about 1672, was Peter Thatcher, a man of considerable skill in medicine. He was born at Salem in 1651 and graduated from Harvard in 1671. Tradition says that he expended a considerable portion of his annual salary in procuring medicines for the sick poor. He died December 27, 1727.

In 1669 Henry Taylor, surgeon, of Boston, had his rate omitted in consideration of his agreement to attend to the sick poor.

In 1671 Dr. Samuel Stone agreed to attend to "the town's poor for twenty shillings in money and a remittance of taxes."

Several physicians of the name of Clarke resided and practiced in Boston and vicinity about this period.

Dr. Thomas Oaks, a Harvard alumnus of 1662, and William Hughes practiced medicine in Boston between 1685 and 1695. The former, a very pious man, was chosen a representative in 1689 and died in 1719, aged 75 years.

Elisha Cooke, who was born September 16, 1637, and graduated at Harvard in 1657, was a popular physician and politician. He was one of the counselors of Massachusetts in 1690 and married a daughter of Governor Leveritt. He died in 1715, in the seventy-eighth year of his age. His son, bearing the same name, succeeded him in practice, but died in 1737.

The above-mentioned and other physicians devoted themselves to medicine in Massachusetts and adjoining provinces before the close of the seventeenth century.

MEDICAL PIONEERS IN MASSACHUSETTS—EIGHTEENTH CENTURY.

Early in the eighteenth century, Dr. Nathaniel Williams, a graduate from Harvard in 1693, combined the professions of medicine and theology. His death occurred in 1739. He published in 1721 a pamphlet on the inoculation of the small-pox.

Dr. Zabdiel Boylston, son of Dr. Thomas Boylston, of Brookline, was born in Massachusetts in 1684 and died in 1766, after a long and honorable professional career. He introduced the practice of inoculation into America in 1721, meeting at first with great and violent opposition, which he was able eventually by prudence and perseverance to overcome. He published, in 1726, a historical account of inoculation in Boston. He also made communications to the Royal Society, of which he was a member.

William Douglass, M. D., a native of Scotland, was educated at Leyden and Paris as a physician and immigrated in 1718 to Boston, where he died, October 21, 1752. He was an author of some ability. He was extremely hostile to the practice of inoculation and opposed it through the public press and by a pamphlet published in 1722 and an essay on small-pox in 1730. He published, besides, an essay on epidemic fever in 1736 and in 1749 and 1755 a work entitled *The British Settlements in North America*, in two volumes.

Drs. Lawrence Dalhousie and Joseph Marion were practicing in Boston at the same period, and were supporters of Dr. Douglass, and also opposed the practice of inoculation, and made a sworn deposition of their personal experience of its dangerous character.

Drs. Isaac Rand, Samuel Gelston of Nantucket, and William Aspinwall, M. D., were leaders in inoculation in Massachusetts when small-pox was repeatedly epidemic. The first-named died June 19, 1749, aged 63 years. He was a native of Charlestown and a student of Dr. Thomas Graves, of that place. The last-mentioned, a native of Brookline, graduated at Harvard in 1764, and, having studied medicine with Dr. Benjamin Gale, of Connecticut, completed his medical education at Philadelphia, where he obtained the degree of M. B., in 1768. He was a surgeon in the Continental Army and one of the most prominent medical men of his time in America. He was distinguished for his success in treating small-pox and maintained for many years a private hospital near Boston for the inoculation of the same. He promptly abandoned this practice on the introduction of vaccination, which was thoroughly tested by him in his own hospital.

John Cutler was a physician of eminence during the early part of the century and was the preceptor of many medical men who rose to eminence.

Sylvester Gardiner, a native of Kingston, R. I., enjoyed the reputation of a good physician and surgeon. He was the proprietor of a large apothecary-store in Boston. He died in 1786, aged 68 years.

Benjamin Church, who graduated at Harvard College in 1754, and subsequently studied medicine with Dr. Pyncheon, was popular as a physician and a man of learning and was appointed first surgeon-general of the Continental Army, but was dismissed and imprisoned for some treasonable correspondence. After languishing in prison for a year, he obtained permission to go to the West Indies; but the vessel in which he sailed was never heard of again.

Dr. James Lloyd, a native of Long Island, died in Boston, in 1810, aged 82 years. He received his medical education in Europe and was held in high esteem for his medical skill.

Drs. Thomas Bulfinch, father and son, were physicians of large business in Boston towards the close of the eighteenth century.

Dr. Miles Wentworth attended many of the wounded patriots during the siege of Boston.

Dr. Nathaniel Perkins practiced in Boston prior to the Revolution.

Drs. William Lee Perkins, M. Whitworth, Lord, John Perkins, Philip Godfrey, Roberts, Barret, Charles Pyncheon, and Benjamin Curtis, all practiced medicine in Boston about the year 1764 and were in good repute. The last-named graduated at Harvard, and after leaving college studied medicine with Dr. Joseph Gardiner and settled in Boston, maintaining a good reputation and practice until his death, which occurred in 1784, in the thirty-second year of his age.

Joseph Gardiner was held in high esteem as a physician and surgeon, and, although well-informed, affected to despise book-learning. He died in 1788.

Joseph Whipple, a student of the preceding, was a practitioner of note and for some time secretary of the Massachusetts Medical Society. He acquired a large professional business in Boston, where he resided. His death occurred in 1804, in the forty-eighth year of his age.

Drs. Nathaniel Walker Appleton and Charles Jarvis, of Boston, were contemporaries. Dr. Appleton graduated at Harvard, and in 1773 began the study of medicine with Dr. Holyoke, of Salem. Dr. Jarvis, son of Colonel Jarvis, having graduated at Harvard in 1766, went to Europe to complete his education. After his return he settled in Boston as a physician. He was a zealous patriot and took an active part in the struggle for independence, being a member of the legislature and a surgeon in the Army. He died, November 15, 1807, while surgeon of the marine hospital at Charlestown. His wife was a granddaughter of the first Baron Pepperille.

John Sprague, having graduated at Harvard in 1737, became the pupil of Dr. Dalhousie, of Boston, whose daughter he subsequently married. He had an extensive practice and was sent to the convention for framing a State-constitution, in 1779. He died in 1789, aged 90 years.

John Homans, having served his country throughout the Revolution as a surgeon, settled to the practice of medicine in Boston.

Passing to other towns, we meet with Dr. John Pope, who early resided in Stoughton, where he practiced medicine, exacting no fee for professional services rendered on the Sabbath. Died in Boston in 1796, aged 55.

Thomas Little practiced in Plymouth from 1700 to 1712, the year of his death.

Joseph Richards was born at Dedham, April 18, 1701, and graduated from Harvard in 1721. He studied medicine and practiced in his native town. He served as a military officer, and was a magistrate at the time of his death, February 28, 1761, being then 59 years of age.

Elijah Danforth graduated from Harvard College in 1703 and, having studied medicine, commenced practice in Roxbury, but removed to Dorchester some years previous to his death, which occurred in 1753. He had accumulated a handsome fortune as the result of his professional labors.

The second regularly-educated physician of Scituate, Benjamin Stockbridge, was born in that town in 1704. He was a student of Dr. Bulfinch, of Boston, and himself educated many young men for the profession. His practice extended over all the old colony and was considerable in Worcester and Ipswich.

John Corbett was the earliest physician of Bellingham. His son John also practiced very successfully in the same town. In the latter part of

his life his powers of speech and locomotion failed ; yet, with a chair on wheels and a well-trained horse, he continued to attend a large circle of patients until near his death, which occurred in 1794.

Nathaniel Ames was born at Bridgewater, July 22, 1708, practiced medicine in Dedham, and died at Dorchester, July 11, 1764, at the age of 56 years. Having acquired a local fame in the science of astronomy, he published an almanac annually from 1735 to the time of his death.

Upon the death of Dr. Elijah Danforth, in 1736, William Holden succeeded to his practice in Dorchester and vicinity. Dr. Holden was born at Cambridge, March 4, 1713, and died in Dorchester, March 30, 1776.

Benjamin Richards was born at Weymouth in 1714, and died in 1755. He practiced medicine in his native town, sustained a good professional reputation, and enjoyed an extensive practice until his death.

Henry Turner died at Quincy, January 21, 1773, aged 84 years. He was a native of England, and was educated in London as an apothecary, immigrated to Massachusetts as early as 1715, but never acquired an extensive practice. His son, bearing the same name, was a regularly-educated physician and practiced in Quincy until his death, which occurred previous to that of his father.

The earliest physician of Dorchester Village, (now Canton,) which was organized in 1717, was Dr. Belcher. Tradition says of the doctor that he was no inconsiderable athlete, and that he and his minister, the latter also a mighty wrestler, unwilling to compromise the dignity of their respective callings by a public trial of strength, often retired alone to the forest to renew the sports of their youth.

Dr. Jonathan Thayer, a successful physician of Bellingham, died in 1760, in the forty-third year of his age.

Isaac Otis, a gentleman of uncommon accomplishments, was the first resident physician of Scituate who was regularly educated for the profession. He died in 1718.

Dr. Daniel Rogers, son of Dr. John Rogers, perished in a snow-storm, while visiting a patient on Hampton Beach, December 1, 1722.

James Jerauld, a native of France, settled at Medfield about the year 1733, where he owned a large estate, which he cultivated by slave-labor. He practiced medicine successfully for many years, and died October 17, 1760, leaving his professional practice to his nephew and adopted son, James Jerauld, who also became eminent as a medical man. The latter died March 28, 1802, aged 80. He was elected a member of the convention for framing a State-constitution.

Dr. Ammi Cutter, a native of Yarmouth, Me., graduated at Harvard, 1752. He studied medicine with Dr. Clement Jackson, in Portsmouth, was appointed and served as surgeon to the New Hampshire troops in 1758. At the commencement of the Revolution he was commissioned surgeon and was appointed physician-general of the eastern department, and always acquitted himself with credit. He died in 1820, aged 85.

Dr. Ezra Dean, believed to have been the first physician that settled in Taunton, Mass., practiced there for many years. He died in 1737.

Dr. William Dexter studied medicine with Dr. Edward Flint, of Shrewsbury. He was commissioned in 1775 and was in the battle of Bunker Hill. He died December 4, 1785.

Joseph Baxter, son of the Rev. Joseph Baxter, second minister of Medfield, graduated from Harvard in 1724 and studied and practiced medicine. He died of small-pox, in 1745.

John Wilson, the first resident physician of Braintree, (now Quincy,) enjoyed an excellent reputation and practiced until his death, in 1727. He probably finished his medical education in London. His father, the Rev. John Wilson, was also a physician.

Ebenezer Doggett, the first resident physician of Walpole, died, February 26, 1782, of cancer of the breast. His professional visits often extended to Foxboro' and Wrentham.

Edward Stedman succeeded to the medical practice of Dr. John Wilson, who died at Braintree in 1727.

William Whiting, of Great Barrington, an eminent physician, was a native of Norwich, Conn., where he studied medicine with Dr. John Bulkley. He settled at Great Barrington about 1760 and held the reputation of being the best physician in that section. He was respectively judge of the common-pleas court, member of the Provincial Congress, and delegate to the convention for framing the State-constitution in 1779. He died of dropsy, December 8, 1792, aged 63 years.

Cotton Tufts was born at Medford in May, 1731, and graduated from Harvard in 1749. He studied medicine with his brother, Dr. Simon Tufts, of Medford, and settled in Weymouth, where he enjoyed a reputation for professional ability and had a very large practice. He was a member of the convention that adopted the Constitution of the United States, served as a member of the State-senate for a number of years, and was president of the Massachusetts Medical Society from 1787 to 1793. He died December 8, 1815.

Oliver Prescott, a physician of Hanover, had conferred upon him, in 1792, the degree of M. D., *pro honoris causa*, by Harvard. He was born April 27, 1731, graduated from Harvard in 1750, and received the degree of A. M. in 1753. He was town-clerk 13 and selectman 32 years. He held respectively the offices of major, lieutenant-colonel, colonel, and brigadier-general, previous to the Revolution. He was a justice throughout the Commonwealth, a member of the board of war, and a member of the council of the State, and in 1779 was appointed judge of probate for Middlesex County, which latter office he retained during life. In 1778 he was appointed third major-general in the Continental Army and in 1781 second major-general, but resigned soon after on account of sickness. He died November 4, 1804.

His son, Oliver Prescott, jr., was also a prominent physician. He entered Harvard in 1779, and the degrees of A. B. and A. M. were con-

ferred upon him in due course. Having studied medicine with his father and Dr. Lloyd of Boston, he settled in Groton, and soon acquired an extensive practice, not only in that place, but in several other towns in the vicinity. He was appointed a surgeon in General Lincoln's army, raised in 1787, to suppress Shay's rebellion. He occupied the respective offices of town-clerk, chairman of the selectmen, justice of the peace, and representative of the town in the General Court in 1810. His reputation as a physician was even greater than that of his father, though he was never so popular as a man.

Giles Crouch Kellogg, a native of Hadley, was the adopted son of Dr. Crouch, an excellent but eccentric physician of Hadley, who came originally from England. He graduated from Harvard in 1751, studied medicine, and acquired a reputation for proficiency in his profession. His name appears in the charter of the Massachusetts Medical Society. He died about 1787, at the age of 54 years.

Charles Stockbridge, son of Dr. Benjamin Stockbridge, was born at Scituate in the year 1734, graduated from Harvard in 1754, and pursued the study of medicine under his father. He was a skillful physician, a gentleman of pleasing manners, and accomplished in literature. Died in 1806, aged 72 years.

John Metcalf was born at Wrentham, July 3, 1734, and studied medicine with Dr. Joseph Hewes, of Providence, R. I. Commenced practice in Franklin in 1758, but abandoned it in 1808, owing to old age and infirmities. He removed to St. Albans, Vt., where he died August 22, 1822, aged 88 years.

Joseph Jacobs, of Scituate, was a man of talent and a skillful and successful physician. He was one of the proprietors of the Jacobs Mills, and a large landholder in Scituate and Hanover. He married Mary, daughter of Edward Dorchester, about 1734.

Micajah Sawyer, M. D., son of Dr. Enoch Sawyer, a physician of Newburyport, was born July 15, 1737, and graduated from Harvard in 1756. He studied medicine with his father, and began the practice of his profession in his native town, and soon acquired a great reputation as a physician, and received the honorary degree of M. D. from Harvard. When the committee of safety and correspondence was organized in 1776, he was made a member, and was conspicuous as a patriot throughout the whole period of the Revolution. He was enrolled in various literary and benevolent societies and died September 29, 1815.

The town-clerk of Stoughton, Dr. George Crossman, maintained during life a good reputation as a physician. He died at Canton, September 25, 1805, at the age of 68 years.

John Druce, a native of Brookline, graduated from Harvard in 1738 and studied medicine at Watertown. He settled as a physician at Wrentham, about the year 1740, but died of consumption at the age of 55 years.

Dr. Samuel Leslie Scammell emigrated from England in 1738 and set-

tled in that part of Mendon now called Milford, and there practiced medicine until his death, in 1752. He was 45 years of age. His son, bearing the same name, was also a practitioner of medicine and was the father of Colonel Alexander Scammell, a distinguished officer of the American revolutionary army, and Dr. John Scammell, a physician of considerable celebrity. The son of the last-mentioned, Dr. John Scammell, was born at Milford, in 1761, and studied medicine with his father. On the death of his maternal grandfather, Dr. John Corbett, he removed to Bellingham, to take possession of the estate and practice bequeathed him by the doctor. He served for a short period in the Continental Army. About a year previous to his death he fractured his thigh, which never re-united. He died, March 9, 1845, at the age of 84 years.

Samuel Holten was born at Salem Village, (now Danvers,) June 19, 1738, studied medicine with Dr. Jonathan Prince, and settled in Gloucester to practice his profession, but shortly after removed to his native town. In 1775 he espoused the cause of the patriots, and was placed upon several important committees of the Continental Congress, of which body he was a member. He was also on the medical board for the examination of applicants for appointment to the medical department of the Army. In 1777 he was one of the delegates from Massachusetts who assisted in framing the Articles of Confederation of the United Colonies, and later was chosen delegate to the American Congress, and affixed his ratifying signature to the Constitution of the United States. He was afterward elected president of that body. In 1796 he was appointed judge of the probate court of Essex County, which office he resigned in 1815, after having been in public station over forty-seven years. With a majestic form, a graceful person, and engaging manners, he was eminently popular. He died, January 2, 1816, in the seventy-eighth year of his age.

Jonathan Davis, a native of Maine, graduated from Harvard in 1738, and was for years a reputable physician in Roxbury; he died in 1801.

Dr. James Baker was born September 5, 1739, at Dorchester, and graduated from Harvard in 1760; studied theology and became a preacher, but subsequently turned his attention to medicine, which, after practicing a few years, he relinquished, about the year 1780, for other pursuits.

William Baylies, a native of Uxbridge, an eminent physician of Massachusetts, graduated from Harvard in 1760, established himself at Dighton, and became very successful and popular in the practice of medicine. He was a member of the American Academy of Arts and Sciences, of the Massachusetts Medical Society, and of the Massachusetts Historical Society. He represented Dighton in the legislature of the State, occupied a seat in three Provincial Congresses and in the State-convention that adopted the Federal Constitution, and was a judge of the court of common pleas and register of probate for Bristol County.

In 1800 he was one of the presidential electors; and, after a long and useful life, died, June 17, 1826, at the age of 86.

Aaron Wright, of Medway, was born in 1742 and studied medicine with Dr. Thomas Kittridge, whose daughter he subsequently married. Upon the completion of his studies he commenced practice, but the amputation of one of his legs was rendered necessary by disease, notwithstanding which misfortune we find him, in connection with Dr. Jerauld, conducting a small-pox-hospital in Medfield, about 1780.

Dr. Elisha Savil graduated from Harvard in 1743. His reputation as a physician was good, and he acquired an extensive practice, not only in Quincy, where he resided, but also in Milton and the middle and south precincts of Braintree. He died of lung-fever, April 30, 1768, in his forty-fourth year.

Isaac Rand, son of Dr. Isaac Rand, of Charlestown, who died in 1790, aged 71, was born April 27, 1743, graduated from Harvard in 1761, studied medicine with Dr. Lloyd and his father, and settled to practice in Boston in 1764. He was very proficient in the exact sciences, and was appointed, with Samuel Williams, (afterward professor of natural philosophy at Harvard,) to accompany Prof. Winthrop to Newfoundland, to observe the transit of Venus in 1761. He was eminent in his profession and wrote several medical essays and treatises. He died, September 11, 1822, in the eightieth year of his age.

James Pecker, son of Dr. James Pecker, of Haverhill, graduated from Harvard, studied medicine, and settled in Boston. He stood high as a professional man and was the first vice-president of the Massachusetts Medical Society. Towards the close of life he was afflicted with stone in his bladder, which was successfully removed by Dr. Rand. He died, in the year 1794, in the seventieth year of his age.

Gad Hitchcock, D. D., who served as minister of Pembroke fifty-five years, was also a practitioner of medicine. He graduated from Harvard in the year 1743 and died, August 8, 1803, at the age of 85 years.

Dr. Seth Ames, son of Dr. Nathaniel Ames, of Dedham, was born in 1743 and graduated from Harvard in 1764. He served as surgeon of Colonel Read's regiment in the Continental Army and located at Amherst, N. H., but his failing health obliged him to return to his native town, where he died, January 1, 1778.

Ebenezer Hunt was born at Northampton in 1744, graduated from Harvard in 1764, and, having studied medicine with Dr. Charles Pynchon, of Springfield, settled to practice in his native town in 1768. He had an extensive practice; and it is said that he possessed an unusual sagacity in discerning the nature of diseases. He was, for a considerable period, a member of the legislature and for four years occupied a seat in the State-senate.

Dr. Ephraim Wales, a native of Randolph, graduated from Harvard in 1768, and studied medicine with Dr. Amos Putnam, of Danvers. In

1770 he settled in his native parish, acquired a large practice, and instructed numerous pupils. He died, April 7, 1805, aged 59 years.

Phineas Holden, son of Dr. William Holden, was born at Dorchester, January 31, 1744, and, having studied medicine with his father, practiced in the town of his nativity until his death, 1819. In 1792, by vote of the town-council, he was permitted to build a small-pox-hospital on Dorchester Neck.

The first resident physician of Stoughton was Nathan Bucknam, who practiced there subsequently to 1744. He was probably the son of Rev. Nathan Bucknam, of Medway.

Enos Sumner was born in Milton in 1746 and practiced medicine there from 1768 till his death, June 8, 1796.

Samuel Gardner, son of the Rev. John Gardner, of Stow, graduated from Harvard in 1746 and practiced medicine in Milton from 1753 till his death, in 1777.

Elijah Hewins was born in 1747, and studied medicine with Dr. Young, of Boston. He afterward served as a surgeon in the Continental Army. At the close of the war he removed to Sharon, and for twenty years held an extensive practice in Foxboro' and Walpole, as well as Sharon. A few years previous to his death he was stricken with paralysis, which obliged him to relinquish his professional duties. He died in 1827, aged 80 years.

Lemuel Hewins was a student of Dr. Nathaniel White, whose daughter he married. He settled at Sharon, which was incorporated in 1765, and was, probably, the first physician of that borough. At the commencement of his professional career he enjoyed a considerable practice, but, his habits being unfavorable to success, his business soon declined.

Dr. Jeremiah Hall was born in Scituate, December 22, 1748, and settled at Pembroke in 1764. He attained the reputation of an excellent physician and in 1775 was a member of the Provisional Congress.

Lemuel Hayward was born at Braintree, March 22, 1749, and graduated from Harvard in the year 1768. For one year after his graduation he taught the public school at Milton and subsequently commenced the study of medicine under Dr. Joseph Warren. Having completed his studies, by the advice of his preceptor he settled at Jamaica Plains, where he acquired a large and lucrative practice. In 1775 he was appointed a hospital-surgeon by Congress, but resigned his commission on the removal of the Army southward. In 1783 he removed to Boston and in 1784 was elected member of the Massachusetts Medical Society. He died March 20, 1822.

Joseph Orne, an eminent physician of Salem and one of the original members of the Massachusetts Medical Society, was born in 1749, graduated from Harvard in 1765, and studied medicine with Dr. Holyoke. He settled in 1770 at Beverly, but removed to Salem, his native town, where he secured an enviable reputation as a physician. He died, January 28, 1786, of pulmonary consumption, at the age of 37.

Thomas Lowthrain, a native of Perth, Scotland, died at Medfield December 15, 1749. He was a practitioner of medicine of that place and was highly esteemed.

Dr. Edward Augustus Holyoke, the first president of the Massachusetts Medical Society, was the son of Rev. Augustus Holyoke, who was president of Harvard College about 1746. He studied medicine with Col. Thomas Berry, a distinguished physician of Ipswich, and in 1749 settled at Salem, where he practiced medicine nearly eighty years, until his death, which occurred March 31, 1829, at the age of 100 years.

Aaron Dexter, a distinguished physician of Boston, for many years a professor in Harvard, of which institution he was an alumnus, was born at Malden, November 11, 1750, and died, February 28, 1829, aged 79 years. He studied medicine with Dr. Samuel Danforth, of Boston, and commenced practice in the latter place about the close of the revolutionary war. In 1783 he was elected professor of chemistry and materia medica in the medical department of Harvard, which position he filled until 1816, when he was constituted emeritus-professor.

Dr. Benjamin Gott, of Marlboro', practiced medicine during the epidemic of 1749 and 1750 and rendered valuable assistance to the afflicted inhabitants. He married a daughter of Rev. Robert Breck, of Northboro'.

Thomas Kast, son of Dr. Philip Godfrist Kast, was born in Boston, August 12, 1750; graduated from Harvard in 1769 and commenced immediately the study of medicine with his father. In 1770 he was appointed surgeon's mate of the British ship *Rose*; but, on arriving in England in 1772, he resigned, and spent two years in attending the clinics of the hospitals of London. In 1774 he returned to Boston and commenced the practice of his profession. His professional business was large and he was reputed to be a skillful surgeon. He died June 20, 1820, in his seventieth year.

Dr. Oliver Patridge was born at Hatfield in 1751 and removed to Stockbridge in 1771. Two years later he began the active practice of his profession, which he continued until his death, in 1848.

Dr. Barnabas Binney, a surgeon in the Continental Army, was born in 1751. His father was a Boston merchant and his mother, formerly Miss Ings, was a lady of high intellectual culture. He graduated from Rhode Island College (now Brown University) in 1774, but his medical education was acquired in Philadelphia and London. In 1776 he entered the Army as hospital-physician and surgeon, which position he retained until the close of the war, and in which he distinguished himself by his professional ability. His health was so impaired by military service that he lived but a few years, his death taking place June 21, 1787, at the age of 36.

Abijah Richardson was born in Medway, August 30, 1752, and studied two years in Harvard before commencing the study of medicine. In 1776, after completing his medical education, he entered the Army as a

surgeon's mate, but soon received a surgeon's commission, which he retained until the termination of hostilities. He returned to his native town and maintained a respectable practice until the time of his death, May 10, 1822, at the age of 70 years.

Dr. John Barnard Swett was born at Marblehead, June 1, 1752, and graduated from Harvard in 1767. He studied medicine at Edinburgh under the celebrated Cullen and also attended the hospitals of France and England. Having completed his medical education, he returned to America and entered the Continental Army as a surgeon. In 1780 he resigned his commission, commenced practice in Newburyport, and soon had a large and responsible business. He fell a victim to the yellow fever that prevailed in Newburyport in 1796, aged 44.

Samuel Kingsly Glover was born in Milton, in 1753, and entered Harvard College, but before the time of his graduation the Revolution commenced and study at the college was suspended. Shortly after he joined the Army as surgeon's mate, and as such, and in the capacity of surgeon to several war-vessels, he served until 1778, when he resigned his commission and returned to his native town. He did not resume full practice on his return, but devoted considerable time to a private small-pox-hospital. He died July 1, 1839, aged 86 years.

Dr. Joseph Warren, memorable for his patriotism, was in the enjoyment of a large practice and of great popular esteem before the battle of Bunker Hill, in which his life was sacrificed. His life has been so frequently and faithfully sketched that an extended notice here is uncalled for.

John Warren, M. D., brother of General Joseph Warren, was born, at Roxbury, July 28, 1753. He subsequently studied medicine, commenced practice at Salem, and acted as surgeon at the battle of Lexington. Hastening to Boston on the report that a battle had been fought there, he learned that his brother had perished in it, and immediately offered his own services to his country. Though only 22 years old, he was appointed senior surgeon of the hospital at Cambridge, accompanied the Army in its two subsequent campaigns, and in 1777 became surgeon-in-chief of the military hospitals at Boston, which position he retained until the close of the war. In 1780 he gave to a class of medical students a course of dissections and in 1783 was made professor of anatomy and surgery in the medical school of Harvard University. He died of inflammation of the lungs, April 4, 1815, at the age of 61 years.

William Eustis, M. D., a surgeon in the Continental Army, was born, at Cambridge, June 10, 1753, and, having graduated from Harvard in 1772, immediately commenced the study of medicine with Dr. Joseph Warren. At the commencement of the Revolution, he entered the Army as a surgeon of a regiment in the field, but in 1775 was appointed hospital-surgeon, and at the close of the war resumed his practice in Boston. In 1800 he was elected member of Congress and in 1809 was appointed

Secretary of War by the President, (Mr. Madison,) which position he resigned after the surrender of General Hull. He was delegated ambassador to Holland, and upon his return in 1821 was again sent to Congress, and for four consecutive terms occupied a seat in that body. In 1823 he was elected governor, and died in Boston, February 6, 1825, at the age of 72 years.

James Thacher, M. D., was born in 1754, entered the Army as a surgeon's mate in 1775, and was promoted to a surgeoncy in the following year. He was present at many battles, but after the surrender of Yorktown retired from the military service. He received the degree of A. M. from Harvard and M. D. from both Harvard and Dartmouth; was a distinguished antiquarian, as well as a miscellaneous and medical writer. Died at Plymouth, May 24, 1844, at the age of 90 years.

Dr. Amos Holbrook, a prominent physician of Milton, was born at Bellingham in 1754; served in the Continental Army as surgeon's mate, and subsequently spent some time in the hospitals of Paris, adding to his store of professional knowledge. His practice was very extensive, and not only did he engross the chief medical business of Milton, but also of Dorchester. He died June 17, 1842, aged 88 years.

Dr. Cornelius Kollock, whose death occurred January 22, 1754, was the second resident physician of Wrentham.

Dr. Moses Baker, a Friend, and it is supposed a fellow-pupil of the celebrated Dr. Benjamin Church, of Boston, settled in the south precinct of Braintree (now Randolph) in 1755. He had considerable practice in the parish in which he resided, as well as the neighboring ones. His death occurred December 10, 1781.

Dr. Shirley Erving, the grandson of Governor William Shirley, entered Harvard College, where he pursued his studies some years, but did not graduate. He studied medicine, located at Portland, and became eminent in his profession. Towards the close of life he relinquished the active duties of his calling and removed to Boston, where he died July 8, 1813, at the age of 55.

Dr. Samuel Danforth, of Cambridge, graduated from Harvard in 1758 and studied medicine with Dr. Isaac Rand, of Boston. When the revolutionary war broke out, he was judge of probate for Middlesex County; subsequently resided in Weston and in Newport, R. I., and finally settled permanently in Boston. His death, which occurred November 16, 1827, in the eighty-seventh year of his age—after sixty years' devotion to the wants of the sick—was caused by a paralytic affection.

Josiah Bartlett, M. D., was born in Charlestown in 1759 and died, March 5, 1820, of apoplexy. He studied medicine with Dr. Israel Foster, surgeon in charge of the Boston military hospital, and upon completing his studies entered the Army as Dr. Foster's assistant, and served as such until the end of the year 1780. He also served at different times as surgeon to two war-vessels. Upon the termination of the

war, he resumed the practice of his profession in Charlestown. He wrote several medical and miscellaneous works, among which *The Progress of Medical Science in Massachusetts* and *The History of Charlestown* are the best known.

Dr. Joseph Le Baron, of Plymouth, probably the son of Dr. Francis Le Baron, previously mentioned, practiced medicine in that town until his death, which occurred in 1761; Dr. Lazarus Le Baron also practiced there from 1720 to 1773, and Dr. Lazarus Le Baron, jr., till 1784.

Drs. Thomas Swain and Eben Harden Goss practiced medicine in Ipswich about the year 1771.

Thomas Welch, a surgeon in the Continental Army, was born in 1751, and graduated from Harvard in 1772. After the war he enjoyed an extensive practice in Boston; was attached to the marine hospital, and at a later period was appointed quarantine-physician of the port. At the time of his death, which happened in February, 1831, in the eightieth year of his age, he was the oldest member of the Boston Medical Faculty and the only survivor of the original founders of the Massachusetts Medical Society.

Daniel Fisher, of Wrentham, who died March 29, 1774, was a practitioner of medicine in that place.

Timothy Child, M. D., was born at Deerfield, of English parents. Having spent some time at Harvard College, he studied medicine with Dr. Williams and commenced practice at Pittsfield in 1771. Immediately after the battle of Lexington he was appointed surgeon of Colonel Patterson's regiment, but shortly after resigned his commission and, returning home, resumed his professional business. He died in 1821, at the age of 73 years. He was called several times during life to fill the positions of representative and senator in the State legislature.

Dr. Prince practiced medicine at Salem during the revolutionary war.

James Mann, M. D., a native of Wrentham, graduated in 1776 from Harvard and received the honorary degree of M. D. from Brown University in 1815. After leaving Harvard he began the study of medicine under Dr. Danforth, of Boston, and, having completed his studies, immediately joined the Continental Army as a surgeon, but after three years' service his enfeebled health compelled him to resign. In 1812 Dr. Mann was appointed hospital-surgeon in the United States Army and during the war that followed was attached to the medical staff on the northern frontier. In 1816 he published a volume of medical sketches of the war of 1812. He died in New York in November, 1832, aged 70.

Dr. Marsh, formerly of Hingham, practiced in Hanover about the year 1780.

Jabez Fuller, a practitioner of medicine, died at Medfield, October 5, 1781.

Peter Hobart, of Hingham, removed to Hanover about the year 1783, and there resided and practiced until his death, in 1793.

Nathaniel Breed resided in Ipswich, as physician, from 1786 to 1789 and took some part in the town-affairs.

Dr. William Thomas, a practitioner of medicine, resided in Plymouth until his death, which occurred in 1802.

John Frunk, one of the most distinguished physicians of Rutland, died in 1807. He was one of the founders of the Massachusetts Medical Society.

Dr. Brooks practiced medicine at Medford prior to the year 1773.

MASSACHUSETTS SURGEONS IN THE REVOLUTIONARY WAR.

The following-named physicians of Massachusetts served on the medical staff of the American Army during the revolutionary war: Henry Adams, Samuel Adams, Eben Ballentine, Origen Bringham, Ezekiel Brown, Abijah Cheever, John Crane, Lemuel Cushing of Hanover, John Duffield, Samuel Finley, Joseph Fisk, Isaac G. Graham, William Loughton, Benjamin Morgan, Thaddeus Thompson, Samuel Whitewell, Daniel Shute, James B. E. Finley, John Thomas, and William Laughlin.

Surgeon Daniel Bartlett died in Worcester County, Mass., December 25, 1819; William Coggeswell died January 1, 1831, in Rockingham County, N. H.

Francis Le Baron Goodwin served until the close of the war, in Colonel Henry Jackson's regiment, as surgeon.

Walter Hastings entered the medical department of the Army early in 1775.

Thomas Kittredge was commissioned surgeon of Colonel James Frye's regiment from Essex, May 2, 1775.

Surgeon Percival Hall died September 25, 1825.

Surgeon John Lynn, of Boston, was originally from Pennsylvania, and leaving the Army after the cessation of hostilities returned to his native State, where he died about the year 1792, in the forty-third year of his age.

Surgeon David Townsend died in Suffolk County, Mass., April 13, 1829.

MISCELLANEA RESPECTING EARLY MEDICAL PRACTICE.

Governor John Winthrop, the civil head of the Massachusetts colony, although bred to the law, is said to have been skilled in practice of medicine, distributing as charity Van Helmont's remedies. His son John, the first governor of Connecticut, and a Dublin graduate, was a physician of ability, and a record of cases treated by him, it is said, still exists in manuscript. He was also one of the founders of the Royal Society of England, being in London at the time of its organization, and made to it several communications. He died in 1671, aged 71 years.¹

Many other names might be added to this extensive list, but those

¹Douglass's Summary, p. 428.

given are quite sufficient to show how numerous and influential was the medical practitioner in colonial times.

The colony of Massachusetts passed a law in 1649, forbidding chirurgeons, midwives, physicians, and others to exercise or put forth any act contrary to the known rules of their respective arts, &c., the subject-matter of which was repeated in 1665 in a law enacted in the Duke of York's grant.¹

A number of the clergymen who came to America at an early period were also educated as physicians, both in the Dutch and English

¹ *Chirurgions, Midwives, Physittians.*—Forasmuch as the law of God allows no man to impair the life or limbs of any person, but in a judicial way : It is therefore ordered, That no person or persons whatsoever employed at any time about the bodyes of men, women, or children for preservation of life or health as chirurgions, midwives, phisittians, or others, presume to exercise or put forth any act contrary to the known approved Rules of Art in each Mystery and occupation, nor exercise any force, violence, or cruelty, upon or towards the body of any, whether young or old, (no, not in the most difficult and desperate cases,) without the advice and consent of such as are skillfull in the same art, (if such may be had,) or at least of some of the wisest and gravest then present, and consent of the patient or patients if they be *mentis compos*, much less contrary to such advice and consent, upon such severe punishment as the nature of the fact may deserve ; which law, nevertheless, is not intended to discourage any from all lawfull use of their skill, but rather to incourage and direct them in the right use thereof, and inhibit and restraine the presumptuous arrogancy of such as through presidence of their own skill, or any other sinister respects, dare boldly attempt to exercise any violence upon or towards the bodyes of young or old, one or other, to the prejudice or hazard of life or linbe of man, woman, or child. [1649.]—(Ancient Charters and Laws of Massachusetts Bay, pp. 76-77 ; also Laws of Mass., edition of 1672, printed at Cambridge, page 28.)

The following general laws, relating to medical men and medical matters, were enacted in Massachusetts during the colonial period : An act requiring chirurgeons, midwives, and physicians to use no force or violence in their respective callings, without the consent of adepts in the same art, enacted 1649, Stat. Mass., ed. 1672, p. 28 ; An act to better prevent the spreading of infectious sickness, Stat. Mass., ed. 1699, p. 149 ; An act authorizing the selectmen to provide for those sick with contagious diseases, to prevent infection, enacted 1701, Stat. Mass., ed. 1714, p. 167 ; An act providing at the charge of the province a convenient house on the island called Spectacle Island, for the reception of such as shall be visited with contagious diseases, to keep them from infecting others, enacted 1717, Stat. Mass., ed. 1726, p. 261 ; An act empowering courts to adjourn and remove from towns appointed by law for holding courts, in case of sickness by the small-pox, enacted 1730, Stat. Mass., ed. 1759, p. 265 ; An act to prevent persons concealing the small-pox, and requiring a red cloath to be hung out in all infected places, enacted 1731, Stat. Mass., p. 472 ; An act to prevent the spreading of the small-pox and other infectious diseases and concealing the same, enacted 1742, Stat. Mass., 1763, p. 22 ; An act regulating the hospital on Rainsford Island, and further providing in case of infectious sickness, enacted 1743, Temp. Laws, Mass., p. 102 ; An act to regulate the importation of Germans and other passengers coming to settle in this province, providing that sufficient provisions and room be given them to prevent the contraction of diseases, enacted 1750, Stat. Mass., ed. 1759, p. 342 ; An act supplementary to the act regulating the hospital on Rainsford Island, providing for magistrates to order infectious vessels or persons to the province hospital, enacted 1758, Stat. Mass., 1789, p. 378 ; An act to incorporate certain physicians by the name of the Massachusetts Medical Society, enacted 1781, Stat. Mass., ed. 1789, p. 415.

settlements, but particularly in the New England colonies. For this double duty they made especial preparation, with a view to being true missionaries, before they embarked for the New World. In some instances, too, the schoolmaster was also the physician and surgeon of the neighborhood. In those days, when the literature of the profession was largely contained within the covers of Hippocrates and Galen, it was not difficult for a university-graduate to make himself familiar with the medical theories and practice of the times.

As early as 1690, hostilities began to manifest themselves between the English adherents in the New England colonies and the French immigrants and settlers in the Canadas, which were continued, and finally resulted in the subjugation of the French in 1763. These military expeditions and the military training given by them, with the demand they created for skilled medical officers, did something to advance and encourage the progress of medicine in the colonies. The condition of the profession is alluded to by Smith in his *History of New York*.¹

It is true of all wars that they greatly advance medical science.² This is abundantly proved by history and experience.

EARLY MEDICAL PRACTICE IN NEW YORK.

The Dutch West India Company, by which New York was originally held, in their regulations or charter from the States-General, in 1629, entitled "Freedoms and Exemptions," in section xxvii, provided as follows: "The patrons and colonists shall, in particular, and in the speediest manner, endeavor to find ways and means whereby they may support a minister and a schoolmaster; that thus the service of God

¹Few physicians amongst us are eminent for their skill. Quacks abound like locusts in Egypt, and too many have recommended themselves to a full and profitable practice and subsistence. This is the less to be wondered at, as the profession is under no kind of regulation. Loud as the call is, to our shame be it remembered, we have no law to protect the lives of the King's subjects from the malpractice of pretenders. Any man at his pleasure sets up for physician, apothecary, and chirurgeon. No candidates are either examined or licensed, or even sworn to fair practice.—(Smith's *Hist. N. Y.*, p. 326.)

²The war which resulted in the conquest of Canada gave perhaps the first material improvement to the condition of medicine in America. The English army were accompanied by a highly respectable medical staff, most of whom landed in the city of New York and continued for some years in the neighboring territories, affording to many young Americans opportunities of attending the military hospitals and receiving professional instruction. The physicians and surgeons of the Anglo-American army gained the confidence of the public by their superior deportment and professional information and aroused the ambition of the colonial practitioners.

The military establishments in Massachusetts and New York after the Canadian war required medical and surgical attendants, so that the people had the benefit of their advice; in this manner a superior class of medical men was introduced into the community.—(Davis's *History of Medical Education*.)

and zeal for religion may not grow cool and be neglected among them; and that they do for the first procure a comforter for the sick."¹

In 1738 the directors submitted a draught of a law to secure equal justice to all and to define the mode of conducting their business and raising revenues. Section vii provides "For the maintenance of preachers, *comforters of the sick*, schoolmasters, and similar necessary officers; each householder and inhabitant shall bear such contributions and public charge as shall hereafter be considered proper."²

Hermann Mynderts van de Bogaerdet came to the province in 1631 as surgeon to the ship *Endragh*.³

We find the name of William Deeping as chirurgion to the ship *William of London*, in April, 1633, then trading in the Hudson.⁴

There arrived at Manhattan's, March 28, 1638, along with William Kieft, director-general of the West India Company or New Netherlands, Surgeons Gerritt Schult and Hans Kierstede.⁵ The latter was well connected and continued in practice in the colony as late as 1661. He married Sarah, daughter of Annetje Jansen, who owned a farm on Manhattan Island and is said to have been a skillful midwife.

In 1647 William Hays and Peter Vreucht; from 1649 to 1652, Jacob Hendrickson Varvanger, Isaac Jansen, Jacob Mallenacy, and John Pau, some of them being surgeons on ships trading, practiced in New York.

Johannes La Montague,⁶ a Huguenot gentleman of learning, was a skillful physician and a member of Kieft's council. He arrived in New York in 1637 and in 1641 was sent with an expedition of fifty men to defend Fort Good Hope. He held at different times various offices and positions of trust and always acquitted himself with credit.

Samuel Megapolensis,⁷ son of the Rev. Johannes Megapolensis, who came to New York in 1642, was sent to Harvard College in 1657, afterward to the University of Utrecht, where he graduated in theology, and was licensed as a minister, receiving also the degree of M. D. On his return to New Amsterdam he was appointed collegiate church-pastor. He also through life engaged in the practice of medicine. He was one of the commissioners on the part of the Dutch to negotiate with the British the articles of capitulation of the province in 1664.

Dr. Abraham Staats came from Holland, settled at Fort Orange, and was a man of note in the colony as early as 1650. He assisted in making an important treaty with the Indians and in 1664 his house at Clav-

¹History of the New Netherlands, p. 119.

²Documentary History of New York, vol. i, p. 77.

³Brodhead's History of the State of New York, pp. 419, 491.

⁴History of New Netherlands, p. 143.

⁵Brodhead's History of New York, pp. 408, 731, 748; History of New Netherlands, pp. 142, 181.

⁶Brodhead's New York, pp. 273, 279, 322, 550; History of New Netherlands, pp. 180, 185, 186, 266, 273.

⁷Brodhead's New York, pp. 643, 741.

erack was burned by the savages, his wife and two sons perishing in it.¹ His son Samuel, born in the province, was also a physician and was educated in Holland. He located in New York and soon rose to eminence. He died in 1715, much respected.

In 1658, according to the New York City Medical Register, there were but the following three surgeons in New Amsterdam : Kierstede, Vanevanger, and L'Orange.

Jacob D. Commer, as early as 1660, or earlier, was the leading surgeon of New Amsterdam, but subsequently removed to New Amstel, (New Castle, Del.)

Dr. J. Hughes was a practicing physician in the city as early as 1661.

In enumerating the names of the Dutch physicians who had from their learning, worth, and skill attained eminence in the colony prior to the English assumption of government in 1664, the names of Jan du Parck and Alexander C. Curtis² should not be omitted. The latter, in addition to practicing medicine, taught a Latin school. He returned to Holland about the time the English rule began.

Peter Jansen van den Bergh, Jacob L'Orange, Hermann Wessels, Samuel Megapolensis, Comelis van Dyck, (who died in 1687,) and Henry Taylor were in practice between 1658 and 1680.

Gysbert van Imbroeck, who married a daughter of Dr. La Montague, practiced his profession at Wiltwyck prior to 1663. His wife, who had been a prisoner with the Indians and escaped in that year, acted as guide in an expedition against the savages who had been her captors.

In 1664 the doctor was one of the delegates to the provincial assembly.³

Gerardus Beekman was a physician and politician and the son of William Beekman, a leading citizen of the early Dutch rule, who came to New Amsterdam in 1647 and held many positions of public trust. He died in 1707. The doctor was a member of Governor Lesler's council, and after his overthrow and execution Beekman was tried for treason, convicted, and sentenced to be hung, but was pardoned. He was afterward a member of the provincial council, under different governors. He died in 1724.⁴

In 1661 Michiel de Marco Cherts⁵ was surgeon for the Company at New Amstel, now New Castle, Del.

Dr. Jacob von Belcamp was a druggist at New Amstel.

William Beltsnyder was paid for furnishing medicines and was probably also an apothecary or druggist.

The following-named persons were paid, it appears, as comforters of

¹ Brodhead's History of New York, pp. 530, 733, 748; O'Callahan's History of New Netherlands, vol. ii, p. 519.

² Brodhead's History of New York.

³ Brodhead's History of New York, pp. 712, 729.

⁴ Valentine's Manual of Common Council of New York, 1864, p. 567.

⁵ Documentary History of New York, vol. ii, pp. 182-191.

the sick by the Company: Evart Pietersen, Arent Evertsen, and Molenaar.

In 1666 Mr. De Hinse¹ was a French physician and resident surgeon of Fort Albany.

Giles Geodineau,² who signed himself chirurgo-physician, was a French Huguenot and a physician of some ability. He received letters of denization in New York, August 26, 1686.

Dr. Lockhart,³ a Scotch physician, was surgeon to the fort and practiced in Albany in 1689.

Johannes Kerfbyle,⁴ a native of Holland and a graduate of Leyden, was an eminent practitioner of medicine in New York from about the period of the Dutch surrender until 1693. He was prominent as a citizen, influential in society, a member of the Reformed Church, and enjoyed a large professional business about the year 1686. In 1691 he made, by direction of the civil authorities, a post-mortem examination of the body of Governor Slaughter, which is said to be the first recorded autopsy in America. His first wife was Catharine Hug, who came to the colony with him, and upon her death he married, in 1704, Margaret Provoost. He was a member of the provincial council in 1698. He died in the city of New York.

At the time of which we are writing the midwives were licensed to practice in Holland when found qualified, and the emigrants from that country to New Amsterdam brought the same customs and practices with them to their new homes. We might give the names of many who practiced with reputation in New York. There are a number of city-ordinances referring to them.⁵

The councilors and directors of Amsterdam possessed nearly arbitrary powers as to legislative authority. Their acts were, in the main, protective of the rights of the people and they administered equal justice

¹ Documentary History of New York, vol. iii, p. 127.

² Documentary History of New York, vol. iii, p. 716.

³ Documentary History of New York, vol. iii, p. 618.

⁴ Valentine's Manual of Common Council of New York, 1664, p. 590.

⁵ *New York City ordinance, July 16, 1716.*—It is ordained that no woman within this corporation shall exercise the employment of midwife until she have taken oath before the mayor, recorder, or an alderman, (the terms of which are prescribed,) to the following effect: That she will be diligent and ready to help any woman in labor, whether poor or rich; that in time of necessity she will not forsake the poor woman and go to the rich; that she will not cause or suffer any woman to name or put any other father to the child, but only him which is the very true father thereof, indeed, according to the utmost of her power; that she will not suffer any woman to pretend to be delivered of a child who is not indeed, neither to claim any other woman's child for her own; that she will not suffer any woman's child to be murdered or hurt; and as often as she shall see any peril or jeopardy, either in the mother or child, she will call in other midwives for counsel; that she will not administer any medicine to produce miscarriage; that she will not enforce a woman to give more for her services than is right; that she will not collude to keep secret the birth of a child; will be of good behavior; will not conceal the births of bastards, &c.—(Manual of the Corporation of the City of New York, 1858, p. 564.)

to the different professions and classes remote from established courts of justice.¹

As showing the spirit of legislation of the times in relation to medical men, the following is worthy of note. The act aimed to impose a sort of detective-duty upon the surgeon which could not be submitted to by the profession, and no doubt was a dead letter.

In December, 1657, a city-ordinance was passed by the schout,² burgomaster, and schepens,³ giving notice "To all chirurgeons of the city that when they are called to dress a wound they shall ask the patient who wounded him and that information thereof be given to the schout."⁴

In the Duke of York's laws, enacted about 1665 for the government of the province of New York, when Nantucket, Martha's Vineyard, Normansland, and the Elizabeth Islands were also considered as lying within the Duke's patent, a stringent law relating to chirurgeons, midwives, and physicians was passed, which, as it may be found to possess some historical interest and is not generally available to readers, is given in full in a note.⁵

Dr. William van Rasenburgh was surgeon to the colony of New Amsterdam, on the Delaware, November 3, 1659, to 1662.

¹ *From the Dutch Records, February 2, 1652.*—"On the petition of the chirurgeons of New Amsterdam, that none but they alone be allowed to shave; the director and council understand that shaving doth not appertain exclusively to chirurgery, but is an appendix thereunto; that no man can be prevented operating on himself, nor to do another the friendly act, provided it be through courtesy, and not for gain, which is hereby forbidden. It was then further ordered that ship-barbers shall not be allowed to dress any wounds nor administer any potions on shore without the previous knowledge and special consent of the petitioners, or at least of Doctor La Montague." This, says the editor of the New York City Medical register, is the earliest order on record regulating the practice of medicine in the State.—(Medical Register, city of New York 1865, p. 198.)

² Sheriff.

³ Justices.

⁴ Valentine's Manual of Corporation of New York for 1858, p. 537.

⁵ *Chirurgeons, Midwives, Physicians.*—That no person or persons whatever employed about the bodys of men, women, or children for the preservation of life or health as chirurgeons, midwives, physicians, or others, presume to put forth or exercise any act contrary to the known approved rule of art in each mystery or occupation, or exercise any force, violence, or cruelty upon or towards the body of any, whether young or old, without the advice and consent of such as are skilful in the same art, (if such may be had,) or at least of some of the wisest and gravest then present, and consent of the patient or patients if they be *mentis compotes*, much less contrary to such advice and consent, upon such severe punishment as the nature of the fact may deserve; which law, nevertheless, is not intended to discourage any from all lawful use of their skill, but rather to encourage and direct them in the right use thereof, and to inhibit and restrain the presumptuous arrogance of such as, through confidence of their own skill or any other sinister respects, dare boldly attempt to exercise any violence upon or towards the body of young or old, one or other, to the prejudice or hazard of the life or limb of man, woman, or child.—(Picture of New York, p. 169.)

NEW YORK PHYSICIANS OF THE EIGHTEENTH CENTURY.

Naturally enough, at the beginning of the eighteenth century, owing to the increased population in the colonies, a greater number of medical men of note were found in them, many of whom, being practitioners in New York, are mentioned by Dr. Francis in his anniversary-discourse before the New York Academy of Medicine, 1847. The following are the names of a few of the more prominent physicians of that period:

Drs. Lucal van Eflinchoone was from Germany and Robert Brett and Thomas Thornbill from Great Britain.

John van Beuren was from a place of that name near Amsterdam, in Holland. He was a pupil of the celebrated Boerhaave and a graduate of Leyden. Shortly after his arrival in New York, early in 1700, he was appointed physician to the almshouse. His son, Beekman van Beuren, who was born in New York in 1727 and died in 1812, succeeded to the same position, and from this ancestral stock has sprung the numerous and respectable family of this name scattered throughout the United States.

Dr. Cadwallader Colden, born, 1688, at Dunse, in Scotland, after winning literary honors at the University of Edinburgh, in 1705, and having studied medicine, settled in Philadelphia in 1708. He practiced in Pennsylvania until the year 1718, when he was appointed by Governor Hunter surveyor-general of the colony of New York. He was an eminent naturalist and published in 1720 an account of the climate of the State. In 1735 he wrote a paper on the sore-throat-distemper; and a paper on cancer, published shortly after, is said to have been written by him. Subsequently, in 1743, he published *Observations on the Yellow Fever of New York, 1741-'42.*¹

To him is due the credit of suggesting the establishment of the American Philosophical Society. His botanic and other writings exhibit great industry and powers of observation, he having collected and described between three hundred and four hundred new plants. His *History of the Five Nations*, in two volumes, is the best history of these Indians extant. He held the position of lieutenant-governor in 1761 and again in 1775, besides other positions of honor and trust, and died, September 26, 1776, at the age of 88.

In 1740, Isaac Dubois took the degree of M. D. at Leyden and published a thesis on the "Use and abuse of blood-letting." He practiced in New York, where he died, in 1743.

Dr. John Nicoll died in 1745, after having practiced in the city of New York for nearly half a century. He served as one of the judges of the court in Governor Lesler's time.

John Dupuy was a contemporary of Dr. Nicoll and a man of skill and prominence in the medical profession, but died in 1745, at the early age of 28.

¹ American Medical and Philosophical Register, p. 310.

Frank Brinley was a surgeon of the New York provincial troops during the French and Indian war. He went to South Carolina in 1757 or 1758, but died, on his way back, at Shelburne, N. J.

Dr. James Brewer, a native of Massachusetts, practiced at Yorktown during the Revolution. On the night of November 19, 1780, a party of British soldiers surrounded the house of Dr. Ebenezer White, a zealous patriot; but, Dr. White having escaped, they seized upon Dr. Brewer. As the captors and their prisoner were leaving town, they were fired upon, and Dr. Brewer was mortally wounded by his friends, who sought to rescue him, and expired the following day, aged 39 years.

Ebenezer Crosby, a surgeon in the New York Guards of the Continental Army, a native of Quincy, Mass., graduated from Harvard in 1777 and finished his medical education at the University of Pennsylvania. After the war he secured an enviable reputation in New York and in 1785 was elected professor in Columbia College, which appointment he retained until his death, July 16, 1788.

Charles McKnight, of Irish descent, was born at Cranbury, N. J., October 10, 1750; graduated from Princeton in 1771; studied medicine with Dr. Shippen, and entered the Continental Army as a surgeon, but was afterward appointed senior surgeon of the flying-hospital in the middle department. At the close of the war he settled in New York, where he delivered lectures on anatomy and surgery. He communicated a case of extra-uterine abdominal fetus successfully removed by an operation, (see vol. 4, Mem. Med. Society of London.) The doctor was one of the earliest physicians in New York to use a carriage as a conveyance in his rounds to visit patients. He died November 16, 1791, aged 41.

Archibald McDonald, born in Scotland in 1745, came to this country at the age of 12, and resided for some time in Canada. His brother, an officer in the British army, sent him to Philadelphia to acquire a medical education. He commenced practice in North Carolina and subsequently served for several years as a surgeon in the British army. In 1787 he married a lady of Dutchess County and removed to White Plains, where he resided until his death, December 21, 1813. From a genealogical manuscript in the handwriting of his brother, it appears that one of his ancestors married a sister of Robert de Bruce.

Dr. John Thomas, born at Plymouth, Mass., April 1, 1758, entered the Continental Army in 1776, in which he served as surgeon throughout the war. On the termination of hostilities he settled at Poughkeepsie, where he resumed practice with great success. He died in 1818, at the age of 60.

Dr. Ebenezer White, son of Rev. Ebenezer White, was born in Westchester County in 1744 and settled at Yorktown previous to the commencement of the Revolution. He was much interested in politics and religion, possibly at the expense of his progress and proficiency in medicine. During the Revolution he was noted as a patriot, the British

making several ineffectual attempts to capture him for the purpose of exchanging him for an English surgeon then in the hands of the Americans. He died, March 8, 1825, at the age of 81.

Dr. Samuel Adams, of Mt. Pleasant, a native of Scotland, came to America about the time of the revolutionary war, and probably served as a surgeon in the Continental Army. After the war he settled in Westchester County. So great was his reputation as a surgeon that for many years no important surgical operation was performed in Westchester or the contiguous counties without his presence. He died in 1828, at the age of 90 years.

Isaac Gilbert Graham, a descendant of the Duke of Montrose, and a son of Dr. Andrew Graham, was born in South Parish, Conn., September 10, 1760; studied medicine under his father, a physician of good standing, and entered the American revolutionary army as an assistant surgeon at an early age. He possessed the warm regard of General Washington and of the officers of the General's staff for his professional ability and staunch patriotism. At the close of the war he married and settled at Unionville, where he practiced for nearly sixty years. Died September 1, 1848, in his eighty-eighth year.

Samuel Osborne, a son of Dr. John Osborne, of Middletown, Conn., studied medicine and became a physician of repute in Brooklyn. He subsequently resided in New York City.

Ebenezer Sage, of Sag Harbor, a graduate of Yale College in 1778, was a practitioner of medicine and a literary and political character of note; also a member of Congress from New York from 1809 to 1815, and died in 1834.

Dr. John Bard, a native of Burlington, N. J., was born February 1, 1716. Having completed his preliminary education, he was apprenticed to Dr. Kearsley, an English surgeon of eminence. After serving his apprenticeship he commenced practice in Philadelphia in 1737, but removed to New York in 1746, at the earnest solicitation of many of the inhabitants of that city, and there practiced until within a year of his death, when he retired to his estate near Poughkeepsie, in 1798. On the organization of the Medical Society of New York, in 1788, he was unanimously chosen president. He died of paralysis, March 30, 1799, in his eighty-third year. He won, and retained, the friendship of Dr. Franklin. He was associated with Dr. Middleton in 1750 in performing the second dissection of a human cadaver recorded in America.

Dr. Jacob Ogden was born at Newark, N. J., in 1721, received the best medical education the colonies afforded, and removed to Jamaica, L. I., where he practiced during the remainder of his life. His death, which took place in his fifty-ninth year, was occasioned by a fall from his horse. He wrote several medical dissertations on the sore-throat-distemper of 1769.

Samuel Bard, M. D., son of Dr. John Bard, was born 1742; died in 1821. He studied medicine with his father, and was then sent to Europe.

His medical degree was received from the University of Edinburgh in 1765. His thesis was "*De viribus opii*." On his return to the United States he settled to practice in New York, where he soon rose to eminence. In 1769 he proposed resolutions in favor of a public hospital, which led to the erection of the New York Hospital. He was one of the professors of, and assisted in organizing in 1767, the first medical school in the city of New York. He was General Washington's physician and was by contemporary physicians held in high esteem. He published a treatise on croup, and in 1788 a paper on uterine hemorrhage. In 1807 he published a compend of midwifery.

Richard Bayley, M. D., born in 1745, died 1801, was an eminent physician in the city of New York. He was well qualified and of a philosophic turn of mind; studied yellow fever with great care, and published an *Essay on Yellow Fever* in 1797, with *Letters on Yellow Fever* in 1798. He published an account of cases of angina trachealis, with mode of cure, in 1781. He is said to have been one of the first physicians who rode to visit their patients.¹

Dr. Attwood, according to the authority of the historian Watson, was the first physician in New York to devote his time to obstetric practice and to announce himself by advertisement to the public as an obstetrician. He was a contemporary of Dr. Bayley.

Dr. Jacob Ogden, a native of New Jersey, practiced his profession for many years at Jamaica, L. I. He was particularly noted in his day for his advocacy of inoculation and was a successful and intelligent practitioner. He was the author of a number of papers on the malignant sore-throat and other diseases.

Dr. Seth Miller, a native of Pennsylvania, was the first physician to settle in Sing Sing, N. Y.

Nicholas Romaine, M. D., born in the city of New York in 1756, was educated to medicine and rose to eminence. He was elected president in 1807 of the New York State Medical Society. He was a fine scholar and an active promoter of all educational measures. He died July 20, 1817.

Dr. Benjamin Treadwell, a physician of Long Island, was in practice for nearly sixty-five years. He died in North Hampstead in 1830, aged 95.

Dr. Samuel Clossy, a native of Ireland, came to America and settled in New York as early as 1734. He assisted in organizing the medical college in that city and in 1767 was appointed professor of anatomy. He died in Ireland during the revolutionary war.

Peter Middleton, M. D., a native of Scotland, assisted Dr. Bard in his dissection in 1750, the first in the State of New York. He received a professorship in the medical college in 1767. He published a paper on croup and a medical discourse. He died in 1781.

John Jones, M. D., of Welsh extraction, was born at Jamaica, L. I.,

¹ Watson's *Historic Tales of Olden Times*, 1832, p. 123.

in 1729. His father, Evan Jones, was a physician. He studied medicine with Dr. Cadwallader of Philadelphia, but completed his studies in the European schools; settled in New York, and was appointed to the chair of surgery in the Medical College. He served as surgeon in the war of 1755. In 1780 he was in Philadelphia and was the physician to Washington and Franklin. He made many contributions to the department of surgery. He died June 23, 1791, aged 62.

NEW YORK ARMY-SURGEONS IN THE REVOLUTION.

The following medical gentlemen of New York State served as surgeons in the American Army during some portion of the Revolution :

George Campbell, Andrew Cragie, George Draper, John Elliott, Stephen Graham, Henry Moore, Abner Prior, Thomas Reed, Nicholas Schuyler, William P. Smith, Caleb Sweet, Malachi Treat, Samuel Woodruff, and Joseph Young.

Caleb Austin was commissioned, July 1, 1777, in Colonel John Lamb's regiment of New York artillery. John Cochran was director-general of the medical department.

Samuel Cook was commissioned, November 16, 1776, in Colonel Lewis Dubois's regiment, in which he remained till the close of the war.

Elias Cornelius was commissioned in Colonel Israel Angell's regiment of Rhode Island troops, at the age of 19 years, in opposition to the wishes of his parents, who were attached to the British interests in America. He was captured and confined in New York, but made his escape, rejoined the Army, and remained at his post until the latter part of the year 1781. He died, June 13, 1823, at Somers, N. Y., at the age of 65.

Surgeon Mordecai Hale died December 9, 1832.

Ebenezer Hutchinson was commissioned in Colonel Lewis Dubois's regiment,* June 12, 1778.

Isaac Ledyard entered the medical department of the Army in March, 1776.

Surgeon Benjamin B. Stockton died June 9, 1829.

Josiah Watrous, commissioned in Colonel Ebenezer Stevens's regiment of artillery September 4, 1777, was stationed at West Point until January 8, 1779, when he resigned.

Surgeon John F. Vacher died December 4, 1807.

William Wheeler, commissioned in 1777, resigned January 8, 1779.

Henlock Woodruff entered the medical department of the Army in 1775

Dr. Peter van der Lynn, a native of Holland, was a surgeon in Colonel Paulding's regiment during the Revolution. In 1777, when Fort Montgomery was attacked, he and General Clinton escaped from being taken prisoners by swimming across the Hudson.

Daniel Menema, a native of New York, served as surgeon in the Second New York Regiment to the close of the war. He was a man of extensive acquirements and of elegant and affable manners. He

was a member of the Society of Cincinnati. In 1806 he was president of the Medical Society of Queens County. He died at Jamaica, L. I., January 20, 1810.

Benjamin Welles was surgeon's mate, and then surgeon, from 1777 to the close of the revolutionary war. After the war he settled in Wayne, Steuben County, N. Y., where he practiced with reputation, and died April 19, 1814.

Samuel Stringer, a native of Maryland, having studied medicine, was commissioned in the British army, and was at Quebec in 1758. At the close of the war he settled to practice at Albany, N. Y.

When the revolutionary war commenced, Congress appointed him director-general of hospitals in the northern department. He was a man of ability, but resigned his commission in 1777, and returned to resume a practice which was large and lucrative to the close of his life. He died July 11, 1817, aged 83.

John Thomas, a native of Massachusetts, served as surgeon during the war. After peace was declared he settled and practiced his profession at Poughkeepsie, N. Y., where he died in 1818.

David Shepard, a native of New York, raised and commanded a company at the breaking-out of the Revolution. He resigned the captaincy for the position of surgeon. He was in the battle of Bunker Hill. He died at Amsterdam, Montgomery County, N. Y., December 12, 1818, aged 74.

Nicholas Schuyler, a native of New York, entered the Federal Army as a surgeon at Albany, April 1, 1777. He was an ardent patriot and an active and intelligent surgeon, performing arduous and valuable services during the war. He died at Troy, November 24, 1824.

Thomas Reid was a surgeon of the revolutionary army and during the last two years of the war served in Colonel Luyster's New York regiment. He died at Johnstown, Montgomery County, N. Y., September 18, 1826.

Moses Willard served as surgeon's mate and as surgeon during the war, a portion of the time in Lieutenant-Colonel Willett's regiment.

Moses Younglove was surgeon's mate, and as surgeon served with reputation in various departments. He was a gentleman of varied accomplishments and of fine executive ability, was representative in the legislature, and held other official positions.

Walter Vrooman Whipple was a surgeon in the Revolution. He accompanied the Army to Canada and was actively engaged.

Dr. J. Cochran, of Pennsylvania, studied medicine in Lancaster, Pa., with Dr. Thompson; was a surgeon in the Revolution; after the war settled in Albany; he was on a special reconnaissance, of hardship and danger, of General Washington, April 10, 1777; was appointed surgeon-general of the middle department and in October, 1781, director-general of the hospitals of the United States. He died April 6, 1807, aged 76.

To simply record the names of the many physicians who, prior to the beginning of the present century, rose to eminence in New York, would extend this paper to too great a length. The spirit of legislation¹ in the State has always been liberal and encouraging to the profession.

AFTER THE REVOLUTION.

When the success of the colonies in America became a fact, the serious-minded and provident leaders in public affairs everywhere made liberal provision for education, but rarely further than qualified their sons for becoming ministers and teachers. Colleges were founded and means furnished to a favored few to enable them to attend the universities of England and the Continent. To Oxford, Cambridge, Aberdeen, Leyden, Padua, and Paris, students were sent before the colonies were fifty years old. And, indeed, professional men largely continued to seek their medical education abroad until the beginning of the present century.

Students of divinity often took advantage of their residence in Europe to attend medical lectures and "walk the hospitals," as it was termed; and not a few of them received the doctorate in medicine and afterward became eminently successful in both professions.

¹ The following laws were enacted in New York prior to the revolutionary war. The Dutch records show that, February 2, 1652, an order was promulgated regulating the duties of chirurgions. (See Medical Register, City of New York, 1865.)

An act allowing physicians to travel on the Lord's day, enacted 1695, Stat. N. Y., ed. 1691-1751, p. 23; An act exempting physicians and surgeons from performing the duties of constable or tax-collector, enacted 1715, Stat. N. Y., ed. 1691-1751, p. 117; Physicians, doctors of physic, practitioners of physic, and surgeons exempt from performing military duty—exempt in case of an invasion—section 23, act 1755, Stat. N. Y., ed. 1752-'63, p. 53; An act to prevent infectious distempers being brought into this colony, and to hinder the spreading thereof, enacted 1755, Stat. N. Y., ed. 1752-'63, p. 157; An act to explain the foregoing act, enacted 1755, Stat. N. Y., ed. 1752-'63, p. 57; An act to continue the same, enacted 1756, Stat. N. Y., ed. 1752-'63, fol. 100; An act to appropriate the money raised by divers lotteries for erecting a college and pest-house, enacted 1756, Stat. N. Y., ed. 1752-'63, p. 111; An act to prevent the bringing in and spreading of infectious distempers in this colony, enacted 1758, Stat. N. Y., ed. 1752-'63, p. 137; An act to regulate the practice of physic and surgery in the city of New York, enacted 1760, Stat. N. Y., ed. 1752-'63, p. 188; An act to revive an act to prevent the bringing in and spreading of infectious distempers in this colony, with an addition thereto regulating the practice of inoculation for the small-pox enacted 1763, Stat. N. Y., ed. 1752-'63, p. 432; An act continuing the foregoing act, enacted 1767, Stat. N. Y., p. 494; An act for the better support of the hospital to be erected in the city of New York for poor and indigent persons, enacted March 24, 1772, Stat. N. Y., ed. 1763-'73, p. 696; An act to prevent infectious distempers in the counties of Westchester, Dutchess, and Orange, and regulating inoculation therein, enacted 1772, Stat. N. Y., ed. 1763-'73, p. 695; An act for regulating the practice of inoculation for the small-pox in the city of Albany, enacted 1773, Stat. N. Y., ed. 1763-'73, p. 720; An act to repeal an act to prevent infectious distempers in the counties of Westchester, Dutchess, and Orange, so far as it relates to the borough and town of Westchester and manor of Phillipsborough, enacted 1773, Stat. N. Y., ed. 1763-'73, p. 791.

HONORS TO MEDICAL MEN.

Dr. John Pott was made temporary head of the government of the colony of Virginia in 1628. Gerardus Beekman, also Cadwallader Colden, both physicians, were acting governors of New York at a later period.

There were five physicians in the Congress that declared the independence of America: Josiah Bartlett, Benjamin Rush, Matthew Thornton, Oliver Wolcott, and Lyman Hall.

The second and third presidents of Harvard and the first of the College of New Jersey were from the ranks of medicine. The numerous high and responsible positions held by professional men before and during the revolutionary war, in Pennsylvania, South Carolina, and other States, show the special fitness of medical men of the period for such trusts.

SMALL NUMBER OF TRAINED PRACTITIONERS.

The duplication of professions and diversity of vocation in the same person served to retard the founding of medical institutions by reducing the number of those possessing special executive talent, who might otherwise have been expected to interest themselves in such enterprises.

The number at any one time of highly educated and pre-eminently skillful physicians in a country has ever been limited and must always be so.

The advantages possessed by these new settlements were not sufficiently attractive to cultured physicians, who had passed through the long courses of training then considered necessary to entitle them to practice the art of healing, to draw them hither in any considerable numbers.

New countries and pioneer settlements are usually overrun by adventurers; indeed, these new fields *invite* the most adventurous and least qualified, to the credit of humanity, and some who were unpleasantly familiar with the processes of the law in their native land became useful and exemplary citizens in the New World.

The public records of that period have frequent allusions to the hordes of charlatans. One writer says: "The quacks abound as the locusts of Egypt." Another says of New York: "That place boasts the honor of above forty gentlemen of the faculty, and far the greatest part of them are mere pretenders to a profession of which they are entirely ignorant."¹

BEGINNINGS OF LEGISLATIVE PROTECTION.

In Virginia an effort was made to protect the people against excessive charges, and yet encourage educated practitioners. The earliest law enacted in any of the colonies relating to medical men that I have seen

¹ New York Independent Reflector, 1753.

is the act passed by the colony of Virginia in 1639. This act was revised in 1645-'46.¹

In the colony of Connecticut in particular, and in other rural communities, where the empiric seldom repaired, the absurdities of Indian practice became popular.

The earliest fee-bill that I have seen was that established by an act passed by the colony of Virginia, August, 1736, entitled "An act for regulating the fees and accounts for practicers of physick," which allowed a difference of nearly one-half in favor of physicians who had taken a degree in some university over those who had served an apprenticeship only.²

¹Whereas by the ninth act of assembly, held the 21st of October, 1639, consideration being had and taken of the immoderate and excessive rates and prices exacted by practitioners in physick and chirurgery, and the complaints made to the then assembly of the bad consequence thereof, it so happening through the said intollerable exactions that the hearts of divers masters were hardened rather to suffer their servants to perish for want of fit means and applications than by seeking relief to fall into the hands of griping and avaricious men; it be apprehended by such masters, who were more swayed by politick respects than Xian (Christian) duty or charity, that it was the more gainfull and saving way to stand to the hazard of their servants than to entertain the certain charge of a physitian or chirurgeon, whose demands for the most parte exceed the purchase of the patient; it was therefore enacted, for the better redress of the like abuses thereafter, untill some fitter course should be advised on, for the regulating physitians and chirurgeons within the colony, that it should be lawful and free for any person or persons in such cases where they should conceive the acco't of the physitian or chirurgeon to be unreasonable, either for his pains or for his druggs or medicines, to arrest the said physitian or chirurgeon either to the quarter-court or county-court where they inhabitt, where the said physitian should declare upon oath the true value, worth, and quantity of his druggs and medicines administered to or for the use of the plt., (patient,) whereupon the court where the matter was tryed was to adjudge, and allow to the said phisitian or chirurgeon such satisfaction and reward as they in their discretions should think fitt.

And it was further ordered, that when it should be sufficiently proved in any of the said courts that a phisitian or chirurgeon had neglected his patient, or that he had refused, being thereunto required, his helpe or assistance to any person or persons in sickness or extremity, that the said phisitian or chirurgeon should be censured by the said court for such his neglect or refusal, which said act, and every clause therein mentioned and repeated, this present grand assembly to all intents and purposes doth revive, ratifie, allow, and confirme, with this only exception that the plts. (or, patients) shall have their remedy at the county-courts respectively, unless in case of appeal.—Enacted Gr. Assem. Va., sess. 1645-'66, (Hening's Statutes at Large, vol. 1, pp. 316, 317.)

²An act for regulating the fees and accounts of the practicers in physick.

I. Whereas the practice of physick in this colony is most commonly taken up and followed by surgeons, apothecaries, or such as have only served apprenticeships to those trades, who often prove very unskilful in the art of a phisician; and yet do demand excessive fees and exact unreasonable prices for their medicines which they administer, and do too often, for the sake of making up long and expensive bills, load their patients with great quantities thereof, than are necessary or useful, concealing all their compositions, as well to prevent the discovery of their practice, as of the true value of what they administer: which is become a grievance, dangerous and intolerable, as well to the poorer sort of people, as others, & doth require the most effectual remedy that the nature of the thing will admit:

Although partial recognition of the profession and protection of the people had been secured in several of the colonies, and particularly in some of the large cities, by legislation, the first well-considered act regulating the practice of physic was that passed in New York, June 10, 1760,¹ which required all practitioners of medicine in the city of New

II. *Be it therefore enacted, by the lieutenant-governor, council, and burgesses of the present general assembly, and it is hereby enacted, by the authority of the same,* That from and after the passing of this act, no practicer in phisic, in any action or suit whatsoever, hereafter to be commenced in any court of record in this colony, shall recover, for visiting any sick person, more than the rates hereafter mentioned: that is to say—

Surgeons and apothecaries, who have served an apprenticeship to those trades, shall be allowed:

	£	s.	d.
For every visit and prescription in town, or within five miles.....	0	5	00
For every mile above five and under ten.....	0	1	00
For every visit of ten miles.....	0	10	00
And for every mile above ten.....	0	00	06
With an allowance of all ferriage in their journeys.			
To surgeons, for a simple fracture and cure thereof.....	2	00	00
For a compound fracture and cure thereof.....	4	00	60
But those persons who have studied physic in any university, and taken any degree therein, shall be allowed for every visit and prescription in town or within five miles.....	0	10	00
If above five miles, for every mile more under ten.....	0	1	00
For a visit, if not above ten miles.....	1	00	00
And for every mile above ten.....	0	01	00
With an allowance of ferriages, as before.			

III. And to the end the true value of the medicines administered by any practicer in phisic, may be better known, and judged of, *Be it further enacted, by the authority aforesaid,* That whenever any pills, bolus, portion, draught, electuary, decoction, or any medicines, in any form whatsoever, shall be administered to any sick person, the person administering the same shall, at the same time, deliver in his bill, expressing every particular thing made up therein; or if the medicine administered be a simple or compound, directed in the *dispensatories*, the true name thereof shall be expressed in the same bill, together with the quantities and prices, in both cases. And in failure thereof, such practicer, or any apothecary, making up the prescription of another, shall be nonsuited, in any action or suit hereafter commenced, which shall be grounded upon such bill or bills: Nor shall any book, or account, of any practicer in phisic, or any apothecary, be permitted to be given in evidence, before a court; unless the articles therein contained, be charged according to the direction of this act.

IV. *And be it further enacted, by the authority aforesaid,* That this act shall continue and be in force, for and during two years, next after the passage thereof and from thence to the end of the next session of assembly.—(Hening's Stat. at Large, vol. iv, pp. 509, 510.)

¹ An act to regulate the practice of physick and surgery in the city of New York, passed June 10, 1760.

Whereas many ignorant and unskilful persons in physick and surgery, in order to gain a subsistence, do take upon themselves to administer physick and practice surgery in the city of New York, to the endangering of the lives and limbs of their patients, and many poor and ignorant persons inhabiting the said city, who have been persuaded to become their patients, have been great sufferers thereby; for preventing such abuses for the future—

I. *Be it enacted by his honor the lieutenant-governor, the council, and the general assembly, and it is hereby enacted by the authority of the same,* That from and after the publica-

York to obtain a license certifying qualifications from His Majesty's council, judges of the supreme court, the King's attorney-general, and the mayor of the city.

A general law was passed in New Jersey in 1772,¹ closely patterned
tion of this act no person whatsoever shall practice as a physician or surgeon in the said city of New York before he shall first have been examined in physick and surgery, and approved of and admitted by one of His Majesty's council, the judges of the supreme court, the King's attorney-general, and the mayor of the city of New York for the time being, or by any three or more of them, taking to their assistance for such examinations such proper person or persons as they in their discretion shall think fit. And if any candidate, after due examination of his learning and skill in physick and surgery as aforesaid, shall be approved and admitted to practice as a physician and surgeon, or both, the said examiners, or any three or more of them, shall give, under their hands and seals, to the person so admitted as aforesaid, a testimonial of his examination and admission, and in the form following, to wit :

"To all whom these presents shall come or may concern :

"Know ye, that we, whose names are hereunto subscribed, in pursuance of an act of the lieutenant-governor, and council, and the general assembly, made and published at New York, the tenth day of June, in the year of our Lord one thousand seven hundred and sixty, entitled 'An act to regulate the practice of physick and surgery in the city of New York,' have duly examined ———, physician (or) surgeon, or physician and surgeon, (as the case may be,) and, having approved of his skill, have admitted him as a physician (or) surgeon, (or) physician and surgeon, to practice in the said faculty or faculties throughout this province of New York.

"In testimony whereof we have subscribed our names and affixed our seals to this instrument, at New York, this ——— day of ———, anno Domini one thousand ———."

II. *And be it further enacted by the authority aforesaid,* That if any person shall practice in the city of New York as a physician or surgeon, or both as a physician and surgeon, without such testimonial as aforesaid, he shall, for every such offense, forfeit the sum of five pounds, one-half thereof to the use of the person or persons who shall sue for the same and the other moiety to the church-wardens and vestrymen of the said city for the use of the poor thereof, the said forfeiture to be recovered with costs before the mayor, recorder, or any one of the aldermen of the said city, who are hereby empowered in a summary way to hear, try, and determine any suit brought for such forfeiture, and to give judgment and to award execution thereupon : *Provided,* That this act shall not extend to any person or persons administering physick or practicing surgery within the said city before the publication thereof, or to any person having His Majesty's commission and employed in his service as a physician and surgeon.

¹ An act to regulate the practice of physic and surgery within the colony of New Jersey, passed September 26, 1772.

Whereas many ignorant and unskilful persons in physic and surgery, to gain a subsistence, do take upon themselves to administer physic and practice surgery in the colony of New Jersey, to the endangering of the lives and limbs of their patients, and many of His Majesty's subjects, who have been persuaded to become their patients, have been great sufferers thereby ; for the prevention of such abuses for the future :

SECTION I. *Be it enacted by the governor, council, and general assembly, and it is hereby enacted by the same,* That from and after the publication of this act no person whatsoever shall practice as a physician or surgeon within this colony of New Jersey before he shall first have been examined in physic or surgery, approved of and admitted by any two of the judges of the supreme court for the time being, taking to their assistance for such examination such person or persons as they, in their discretion, shall think fit ; for which service the said judges of the supreme court, as aforesaid, shall

after that of New York, but more specific and strict in its requirements, placing the licensing power with the supreme court of the State.

be entitled to a fee of twenty shillings, to be paid by the person so applying; and if any candidate, after due examination of his learning and skill in physic and surgery, as aforesaid, shall be approved and admitted to practice as a physician or surgeon, or both, the said examiners, or any two or more, shall give, under their hands and seals, to the person so admitted as aforesaid, a testimonial of his examination and admission in the form following, to wit:

"To all whom these presents shall come or may concern :

"Know ye, that we whose names are hereunto subscribed, in pursuance of an act of the governor, council, and general assembly of the colony of New Jersey, made in the twelfth year of the reign of our sovereign lord King George the Third, entitled 'An act to regulate the practice of physic and surgery within the colony of New Jersey,' having duly examined ———, of ———, physician or surgeon, or physician and surgeon, to practice in the said faculty or faculties throughout the colony of New Jersey. In testimony whereof we have hereunto subscribed our names, and affixed our seals to this instrument, at ———, this day of ———, annoque Domini 17—."

SEC. 2. *And be it further enacted by the authority aforesaid,* That if any person or persons shall practice as a physician or surgeon, or both, within the colony of New Jersey without such testimonial as aforesaid, he shall forfeit and pay for every such offence the sum of five pounds; one-half thereof to the use of any person or persons who shall sue for the same, and the other half to the use of the poor of any city or township where such persons shall so practice contrary to the tenor of this act, to be recovered in any court where sums of this amount are cognizable, with costs of suit.

SEC. 3. * * * *Provided always,* That this act shall not be construed to extend to any person or persons administering physic or practicing surgery before the publication hereof, within this colony, or to any person bearing His Majesty's commission and employed in his service as a physician and surgeon: *And provided always,* That nothing in this act shall be construed to extend to hinder any person or persons from bleeding, drawing teeth, or giving assistance to any person, for which services such persons shall not be entitled to make any charge or receive any reward: *Provided also,* That nothing herein contained be construed to hinder any skilful physician or surgeon from any of the neighboring colonies being sent for, upon any particular occasion, from practicing on such occasions within this colony.

SEC. 4. *And be it further enacted by the authority aforesaid,* That any person now practicing physic or surgery, or that shall hereafter be licensed as by this act is directed, shall deliver his account or bill of particulars to all and every patient in plain English words, or so nearly so as the articles will admit of; all and every of which accounts shall be liable, whenever the patient, his executors, or administrators shall require, to be taxed by any one or more of the judges of the inferior court of common pleas of the county, city, or borough wherein the party complaining resides, calling to their assistance such persons therein skilled as they may think proper.

SEC. 5. *And be it further enacted by the authority aforesaid,* That every physician, surgeon, or mountebank doctor who shall come into and travel through this colony, and erect any stage or stages for the sale of drugs or medicines of any kind, shall for every such offence forfeit and pay the sum of twenty pounds, proclamation-money, to be recovered in any court where the same may be cognizable, with costs of suit; one-half to the person who will prosecute the same to effect, the other half to the use of the poor of any city, borough, township, or precinct where the same offence shall be committed.

SEC. 6. *And be it further enacted by the authority aforesaid,* That this act, and every clause and article herein contained, shall continue and be in force for the space of five years, and from thence until the end of next session of the general assembly, and no longer.—(Laws of New Jersey, folio-edition, 1776, p. 376.)

RISE OF HOSPITALS.

Hospitals,¹ or institutions similar in character to the infirmaries of the

¹The word "hospital" is derived from the latin *hospes*, a guest, a stranger. "Hostel" and "hotel" have the same derivation. A hospital in cloisters was an extra apartment or room, a place of shelter for strangers, equivalent in purpose to our hotel, to the *ξενδοχεί* of the Greeks and the *hospitium* of the Romans. Although it is to the Christians that we must look for the full development of institutions having for their purpose the care of the poor and the sick, still the germs of all our benevolent institutions seem to have had an existence among the ancient Egyptians, Greeks, and Romans. The sick were treated in the first temple erected to Esculapius as early as 1134 B. C., at Titanus, a city of Peloponnesus. Young candidates for the priestly office were also taught in them the practice of medicine. The temple of Esculapius, at Cos, being the most famous, had accommodations for the sick. It is probable that the institution established by Antoninus at Epidorus, a hundred years before Christ, was of the same character. One existed on the island of the Tiber at Rome, to which sick slaves were taken to be healed. There was a public building at Delos, on the island Rhœnæa, of the character of a hospital, which was occupied by aged women. At a later period, buildings seem to have been erected near the temples for the accommodation of sick persons visiting them. At Jerusalem there was a large building named Bethesda, or "a house of mercy," for the accommodation of the infirm.

The term "hospital" is first used in connection with curative establishments in the works of St. Jerome.

The first hospital which attained any permanent celebrity was established and richly endowed by the Emperor Valens, at Cæsarea, between the years 370 and 380 A. D.

To either St. Ephraim, who died in 381, or St. Fabiola, is due the credit of founding infirmaries, which were supported by charitable contributions, for the exclusive purpose of treating the sick. The good Bishop Nonus, at Edessa, in Mesopotamia, founded a hospital in 460. Another was opened at Rome about the same time.

The *Taberna Meritoria*, at Rome, seems to have been occupied as a sort of asylum for invalids. Hospitals for the poor and the sick were much encouraged by the early Christians. The council of Nice, A. D. 325, speaks of them as institutions well known, and deserving support and encouragement. St. Chrysostom established a hospital at Constantinople towards the close of the fourth century. Basilus established a hospital in Cappadocia in 370. Paula, a rich Christian lady of Rome, established one about the same year in Jerusalem. In Rome alone, in the ninth century, there were twenty-four hospitals. Alexius Comnenus, in the eleventh century, established hospitals for invalid soldiers at Constantinople. The Hôtel des Invalides of Paris and the Chelsea Hospital of England are of this character. The Hôtel-Dieu in Paris was founded about the middle of the seventh century; Hospitaliers de Saint Antoine de Viennois, in 1198; l'Hôpital des Petites Maisons, 1564; the Hôpital de la Charité, 1602; Hôpital St. Louis, 1607; Notre Dame de la Pitié, 1612; Hospice de l'Accouchement, 1625; Hospice Incurables Femmes, 1634; Hospice Bicolri, 1634, as a retreat for disabled soldiers; La Maison de Charian, 1641; Hospice des Enfants Trouvés, 1656; Hospice de la Salpêtrière, 1656. In Germany, the Hospital of the Holy Ghost and St. George's Hospital, in Bern, were established as early as 1208; St. Gertrude Hospital, 1405, remodeled in 1734; Hospes pour les Enfants, 1687; Hôtel de Refuge, 1699; Maison d'Orange, 1704; Charité, 1710; Invalid House, 1748.

From allusions in history, it is almost certain that institutions known as hospitals were maintained at other important localities for the accommodation of travelers or the sick requiring attention. A foundling-hospital was established at Milan in 787, and a hospital for orphans at Constantinople in 1090. The earliest hospital founded in Great Britain was St. Bartholomew's, in 1122; but, for the three centuries that followed, no other of note was founded in that empire. In the sixteenth century, two institutions were founded in Great Britain: one, Bethlehem, commonly called Bedlam, (1547,) for lunatics,

present time, have probably existed from an early period in the world's history, and certainly from about the period that Christian charity was taught by its divine Master in person.

It was not, however, until the eleventh or twelfth century that hospitals specially intended for the care of the sick became popular and recognized institutions important to large cities.

During the Middle Ages every monastery had its almonry, where one-tenth of its revenues were dispensed to the poor and sick; hence the origin in many instances of the almshouse, from which grew up the infirmary and pharmacy. The monks were our earliest botanists, and in their gardens grew not only table-vegetables, but medicinal plants; and in distribution of these for the benefit of the sick may be traced the earliest development of the office of the dispensary and the apothecary of the present day.¹

and St. Thomas's, (1553,) as a general hospital. There were none established in Great Britain in the seventeenth century. In the eighteenth century, however, there were twelve founded by that nation, and an act of Parliament in 1729 levied a tax of six-pence on each seaman trading in America, for the support of the Royal Hospital.*

Twenty-three have been founded during the first half of the present century. From the slow rise of hospitals proper in Europe, it will not seem strange that they developed into a system but slowly in America. In 1639 there was a small hospital established at Quebec, which was probably the earliest in America. In 1658 one existed in New Amsterdam. In 1701, the year the first settlement was made at Detroit, a "pest-house" was provided for at Salem, Mass., and in 1717 a hospital for contagious diseases was built at Boston, in the same State. In 1751 the Pennsylvania Hospital, at Philadelphia, was chartered, with a department for the care of the insane. The hospital of the city of New York was chartered in 1771. In 1772 the Eastern Lunatic Hospital, at Williamsburg, Va., was chartered. Since then they have multiplied so steadily that, besides extensive State-hospitals for the insane, there are found, in every large city of the Union and in almost all of our chief towns, institutions of this class for the treatment of disease, for the relief of infirmities, and for the proper care of wounds. It is to such curative establishments that the term "hospital" is usually restricted in this country, though in Great Britain, as in Europe generally, it is applied indiscriminately to nearly all charitable institutions.

¹ The term "apothecary" is derived from the Greek *ἀποθήκη*, shop or store. The keeper of a warehouse, or magazine, was formerly called an apothecary. During the early periods of history, physicians undoubtedly prepared their own medicines; but, in the progress of time, and the development of the sciences in every country, it seems to become necessary, or at least adds to the convenience of the physician, to intrust the preparation of medicine to the hands of persons skilled as apothecaries or pharmacists. Galen had, in Rome, a drug-shop in the Via Sacra, which was destroyed by fire in the reign of Commodus, about A. D. 181, when the Temple of Peace and other edifices were destroyed. The art of preparing medicines became a distinct branch in Alexandria, in Egypt, towards the beginning of the fourth century B. C., and to it some physicians devoted themselves. It continued as the employment of particular individuals, and thus the pursuit of the physician became separated from the art of the apothecary. Mantias, a pupil of Herophilus in Alexandria, is credited with being the author of the first pharmacopœia. Heras, of Cappadocia, wrote a work on pharmacy, (B. C. 49.) Throughout the East, but particularly in Alexandria, where learning of various kinds was cultivated to a high degree, the study of chemistry and pharmacy was principally

* Penn's Archives, vol. i., p. 251.

There is no better index to the actual condition of civilization and the development of Christian charity among a people in any age than the care they take of their sick and destitute. One of the complaints of the settlers in New Amsterdam to the home-government, in 1649, was that they had no hospitals or asylums for the poor, the aged, and sick.¹

These complaints must have been effective, for an institution, serving this purpose, and known as the Old Hospital or the Five Houses, was sold by the governor of New York in 1680 for £200, after it had become unserviceable and better buildings had been supplied.

pursued by the Arabians. The caliph Almansor (754 A. D.) is said to have founded in Bagdad the first public apothecary or drug-shop.

In the thirteenth and fourteenth centuries persons who prepared preserves and confectionery at court or for the nobility, according to formulas, were known by this name. Apothecaries, as compounders of medicines, were first legally established in Italy by an edict of Frederick II, for the Kingdom of Naples, about 1220. Edward III, in 1345, conferred a pension of sixpence a day upon Coursus de Gangeland, an apothecary of London, in recognition of his attendance upon him during an illness in Scotland. This is the first notice of the recognition of an apothecary in England. In 1457 a patent was granted for establishing an apothecary in Stuttgart. In France the statute authorizing the apothecaries was issued in August, 1484, by Charles VIII. Until 1511 no distinctive law was made in Great Britain to distinguish between the different branches of the profession of medicine. In 1540 four physicians were appointed to examine all "wares, drugs, and stuffs" sold by apothecaries. The apothecaries were incorporated by James I, April 9, 1606, being united with 'grocers, from whom they were separated by a new act in 1617. Up to 1815 their authority was confined to London, after which it was extended to England and Wales. This corporation has the power to confer licenses on its members, who are thus invested with the right to administer medicine as well as to prepare and sell it in the shops. Thus a large portion of the practitioners of Great Britain are only apothecaries. The Royal College of Surgeons in London has also a charter and the right to grant diplomas, which are, however, honorary and confer no right to practice. In France the old corporation of apothecary-druggists has dissolved, and a corporation of *pharmaciens* has taken its place, but simply as compounders of medicines. This is true, also, of Italy, Prussia, and Germany. In our own country there is no law defining or limiting the sphere of the vocation of the apothecary.

The United States Pharmacopœia came into existence in the following manner:

In 1816 Lyman Spalding, M. D., of Cornish, N. H., conceived the idea of compiling a national pharmacopœia for use in the United States, and in January, 1817, submitted his project to the New York City Medical Society, with a view to secure the co-operation and authority of all medical societies and colleges for the perfection of the work. He suggested that a convention in each of the four grand geographical divisions of our country be held, and that each adopt a pharmacopœia, which should be submitted to a convention, to meet in the city of Washington, to revise and complete the work. The convention assembled and perfected in a most acceptable manner their laborious work. A regulation was at the same time adopted that a convention should meet in that city every ten years for the revision of the National Pharmacopœia, which was adopted and has been pursued ever since. The National Pharmacopœia, better known as the Pharmacopœia of the United States of America, has, since 1833, been known chiefly as "Wood & Bache's United States Dispensatory." These authors state that they have adopted as a basis for their work the general arrangement agreed upon by the national convention in the pharmacopœia. Decennially a general revision of it is made, which incorporates all the new therapeutic agents of importance, thus keeping it even with the times.

¹ New York Colonial Records.

This was probably the first hospital within the boundaries of the United States. The first general hospital chartered in the colonies was the Pennsylvania Hospital at Philadelphia, in 1751. There was a provision in the charter for the care of the insane, which has since been extended to two large State-institutions for this class. In 1769 measures were taken in New York for the establishment of a general hospital, which was chartered in June, 1771.

Dr. Samuel Bard deserves the honor of suggesting this public charity. The Eastern Lunatic Asylum at Williamsburgh, Va., chartered in 1772 and opened the following year, was the first special and independent institution in this country for the care of the insane. This completes the list of chartered hospitals under colonial rule, although post and temporary military hospitals had previously existed for the treatment of soldiers and other employés of the government in the several colonies.

Provisions of a temporary character, for the treatment of contagious diseases, and especially of small-pox, were made from time to time, as emergencies demanded, by all the colonies; and in some provisions were made for the establishment of permanent inoculating-hospitals.

A pest-house, on Sullivan's Island, near Charleston, S. C., was swept off by a flood in 1752, with fifteen persons in it, some of whom were drowned.¹

The Philadelphia Dispensary, for the distribution of medicines among the poor, was opened in 1786 and that of New York chartered in 1791.

AUTOPSY.

Dissections were seldom performed prior to 1760, except by stealth, and even an autopsy was rarely permitted, except when suspicion had arisen that death was the result of foul play. In 1690 Governor Slaughter, of New York, died suddenly, and a post-mortem examination was made by Dr. Johannes Kerfbyle, assisted by five other physicians, to determine if he had been poisoned, which is the first recorded case. The detailed statement of the physicians employed in this autopsy gives evidence that they possessed a good degree of proficiency for such investigations.²

¹Ramsay's History of South Carolina.

²The taking of the testimony of medical men as experts by coroners' juries and criminal courts, in cases of sudden or violent death, is of much more recent practice than might be inferred. The first criminal code in Europe that contained statutory provisions directing the taking of medical testimony in all cases where death was occasioned by violent means was formed or adopted by Charles the Fifth, at Ratisbonne, in 1532. This code laid the foundation for legalized autopsies in criminal cases, for it is only by such means that the medical man, who is sworn by the coroner "diligently to inquire how and in what manner the deceased came to his death," can answer knowingly and correctly.

The office of coroner is first mentioned in a charter granted in the year 925 A. D. by King Athelston to the authorities of Beverly. The powers and duties of coroners are defined and provided for in the common law and in special enactments of the different States.

MIDWIFERY.

Up to about the middle of the eighteenth century the practice of midwifery, as it was called, was exclusively in the hands of women, medical men being called in only in difficult and protracted cases.

Dr. John Maubray is considered to have been the first public teacher of midwifery in Great Britain. His first work was published in 1723.

Dr. James Lloyd, who settled in Boston in 1754, was the first regularly-educated physician in Massachusetts to devote himself to obstetrical practice.

Dr. Attwood is said to have been the first physician in New York to publicly announce himself as devoting himself to the practice of obstetrics. This was in 1762, some years anterior to the revolutionary war.

Dr. William Shippen, jr., immediately on his return from the leading European schools, devoted much of his time and ability to this branch of the profession, in Philadelphia, and was the first public teacher of midwifery in America.

In South Carolina this department of practice was first assumed by Dr. John Moultrie, who commenced practice in Charleston as early as 1733, and for forty years was the most celebrated physician and popular obstetrician in the State or in the South. It is probable that his devotion to obstetrics antedates that of any other physician in America.

THE PHYSICIAN AND THE APOTHECARY.

Dr. John Morgan, of Philadelphia, was in 1765 the first American physician to adopt and publicly advocate the theory that medical men should confine themselves to prescribing remedies, leaving to the apothecary the compounding of medicines. This system was gradually adopted in the cities and large towns, and remains the general practice of the regular profession, except in the remoter country-districts.

This division of labor only became an established practice in Great Britain about 1750. In 1754 the College of Physicians and Surgeons passed an act prohibiting their fellows and licentiates taking upon themselves the duties of the apothecary and in 1765 issued an order against the pursuit of specialties.

Even in the larger towns during colonial times medical practice was laborious and unremunerative. The physician often had to ride from 20 to 100 miles on horseback to see a patient. It was at a comparatively late date that the doctor's gig or "chair" was introduced, even into cities. The compounding of prescriptions and the selling of drugs was then often necessary to the country-doctor, and to some extent is still so, but has been pretty generally eliminated from the other duties of the physician in the towns.

FEES.

In rural regions the physician's fees were often paid, if paid at all, in farm-produce, and his remuneration was so uncertain that he was fre-

quently obliged to combine farming with his professional vocation. This was also true of the clerical profession at that period, as farm- or glebe-lands was attached to nearly all the colonial churches.

In fact, in those earlier days of the Republic, a single industrial pursuit could seldom be relied upon for a livelihood, and success and thrift were frequently proportionate to the diversity of occupation; whatever the principal one might be, the second was ordinarily agriculture. The instances were few where medical men in the United States prior to the Revolution acquired large fortunes solely from their professional vocation. It is true that we had many wealthy physicians, but their fortunes were generally acquired by inheritance or by judicious investments and fortunate speculations.

MEDICAL TITLES.¹

The title of the medical practitioner is not the same in all countries, and the popular meaning of words and titles has so changed that the original signification is, in some instances, almost lost. Thus, in English history we have record of the following appellations having been used: Physician, leech, mire or myre, barbers, barber-surgeon, chirurgion, surgeon, and doctor. Neither surgeons nor physicians of the present

¹The appellations or terms by which physicians have been known at different periods in different countries are sufficiently curious to merit comment. The words "doctor" and "physician," though of classical origin and occurring in all the languages of Western Europe in a more or less modified form, have in the English language alone acquired their peculiar application to the practitioners and professors of the healing art.

The term "physician" is of Greek origin, being derived from *φύσις*, *nature*. From the Greek it was transplanted into the Latin and thence into the Italian, Spanish, Portuguese, Provençal, French, German, and English. But both in the original Greek and all the derivative languages, except the English, the word has retained its proper signification, that of "naturalist," "natural philosopher," or "chemist." The word "physician" in French is never used in the sense in which we exclusively use the corresponding English term. And, singularly enough, the word "physician" in English has entirely lost its original meaning and appertains wholly to the medical fraternity. The fact that in the middle ages the functions of the medical practitioner were united with those of the priest, the chemist, and the apothecary, and that the professor of the healing art was almost the only one conversant with the operations of physical nature to the extent of the knowledge of those days, was probably the cause and occasion whence arose the peculiar application of the term in our language.

The word "doctor" has shared almost the same fate. It is a Latin word, derived from *doceo*, to teach; and, both in its parent tongue and through all its derivations in the so-called Latin or Romanic languages, it has retained its original and appropriate meaning, that of *teacher*. To the English tongue alone is confined the use of the term as applicable to the medical practitioner; and with us it has become the most common designation for that purpose, though it has not lost its original meaning entirely or as exclusively as has the word "physician."

The Hebrew word for *physician* was נָפֵחַ, (*rōphē*), from the verb meaning *to sew, to mend*. Gesenius, in giving examples of the application of the word, records Luther's joke, in which he calls physicians "*unsere Herr Gott's Schuster*"—the cobblers of the

day in Great Britain are called doctors, but are spoken of as surgeon or Mr. In the United States, however, they are almost invariably denominated doctor.

The earliest date at which we find the title Dr. substituted for surgeon and physician in America is in New England, about 1769. Since that period it has become common throughout the United States, and the popular appellation of "doctor" is now almost exclusively given by

Lord God. The Greek *iatros* is from *iaō*, to heal; the Latin *medicus*, from *medeor*, also meaning to heal or to cure; and from the Latin come immediately the Spanish and Italian *medico* and the French *médecin*.

In the twelfth century, in France, according to Collette, practitioners of medicine were commonly called "myres," an appellation which continued to be used for several centuries. It was also in popular use in England. Its derivation has been traced both to the Greek and the Latin languages: Latin, *mirus*, admirable, extraordinary; and Greek, *μύρον*, an ointment.

Our earliest English or Anglo-Saxon appellation for the physician (also often applied to the priestly office) was the word "leech," from the Saxon *laec*, one who provides, who cures, and the active verb *laecnian*, to treat with medicaments, to heal.

"Her words prevailed, and then the learned leech,
His cunning hand 'gan to his wounds to lay,
And all things else the which his art did teach."

—Spenser, *Faerie Queene*.

"The hoary, wrinkled leech has watched and toiled,
Tried every health-restoring herb and gum,
And wearied out his painful skill in vain."

—Rowe.

This term appears to have been the one in common use, not only during the Anglo-Saxon period of English history, but for a considerable time after the Norman invasion. It is yet common enough in poetry, but not often found out of it in that acceptance. Its disuse was due to the same cause which occasioned the superseding of many other Anglo-Saxon words: the introduction of Norman, French, and Latin appellations. The medical practitioner then began to be styled "physician" among the educated classes and "doctor" by those in the lower ranks of society, a distinction which yet obtains to a considerable extent.

The English language is full of instances of words which have lost their proper significance and have been appropriated to uses beyond the scope of their original meaning. There is, perhaps, no more remarkable instance of this deflection than the title of doctor; and it is curious to trace the cause of it.

Both the words "physician" and "doctor" are of frequent use in Shakespeare, and to the same purpose as at the present time. King James's Bible, published in 1582, which is followed in this respect by the Catholic version known as the Douay, and all subsequent versions, never uses the word "doctor" in the sense of a medical practitioner. It is not found at all in the translation of the Old Testament; but in that of the New Testament it occurs several times; never in the meaning of a professor of the healing art, but uniformly and invariably in its more natural meaning of *teacher*; that is, *teacher of the law*, (of Moses,) a title somewhat analogous to our title of doctor of divinity.

The word "physician" occurs both in the Old and New Testaments in the same sense which we attribute to it now. The most ancient allusion to members of the medical faculty, and perhaps the earliest mention of them in any historical record extant occurs in Genesis, chap. 50, verse 2, where it is stated that Joseph employed them to embalm the body of his father, preparatory to its transmission to the ancestral burying-place of his family, near the ancient city of Hebron.

the people to the medical practitioner, when speaking to him, and the term physician used more generally when speaking of him.

MEDICINE IN THE SOUTH.

The Carolinas, from a comparatively early period, furnished numerous valuable contributions to the literature of medicine and natural history, and for some years led all the States in the study of the natural sciences.

As early as 1738, Doctors Maubray, surgeon in the British navy, and Kirkpatrick introduced and conducted successfully general inoculation at Charleston. The practice was at various times resorted to subsequently.

John Lining, a native of Scotland, who settled in Charleston in 1730, was an accomplished physician, and published in 1743 *Observations on the Weather of Charleston* and, later, *An Account of the Excretions of the Human Body*. In 1753 he published, in the second volume of the *Medical Observations and Inquiries*, p. 370, "A description of the American yellow fever." He died in 1760, aged 52 years.

Dr. William Bull was the first native South Carolina physician of note, and the first American, who received the degree of M. D. This was granted at Leyden in 1734, his thesis being on "*Colica pictonum*." He died July 4, 1791, aged 82.

Lionel Chalmers, a native of Scotland and a well-educated physician, settled in Charleston prior to 1740. In 1754 he published *An Essay on Opisthotonos and Tetanus* and in 1768 an article on fevers, in which he adopted the "spasmodic theory." In 1776 he published a work in two volumes on the *Weather and Diseases of South Carolina*. He died in the year 1777, at the age of 62.

Dr. John Moultrie was the next South Carolinian who received the degree of M. D., which was granted in 1749, from Edinburgh. His thesis was "*De febra flava*."

For the ten years intervening between 1768 and 1778, there were ten natives of South Carolina who received the degree of doctor of medicine at Edinburgh. Various unsuccessful attempts had been made to regulate the practice of medicine in the State.

Alexander Gardner, a native of Edinburgh, settled in Charleston in 1750. In 1754 he wrote a description of a new plant, *Gardenia*, which is published in the first volume of *Medical Observations and Enquiries*, p. 1. In 1764 he published an account of the *Spigelia marylandica*, or Carolina pink-root, and in 1772 a second and enlarged edition of the paper in the philosophical transactions. He died in London in 1792, aged 64.

Vaccination was introduced into South Carolina in February, 1802, by Dr. David Ramsey, who was one of the most eminent physicians of his day and was several times elected to the State- and national legislatures. During the absence of President Hancock, at which time Dr.

Ramsey occupied a seat in Congress, he was appointed president *pro tempore* of that body, and filled the chair until the return of Mr. Hancock—nearly a year. He was born in Pennsylvania in 1749, graduated at Princeton in 1765, and in 1772 received the degree of M. B. at Philadelphia. He wrote a number of historical works of decided merit and also served as a surgeon in the Continental Army.¹ He died from the effects of a pistol-shot, fired by one Anson More, in May, 1815.

CAROLINA SURGEONS IN THE REVOLUTION.

The following physicians of South Carolina served in a professional capacity in the Continental Army :

Samuel J. Axon, Robert Brownfield, Nathan Brownson, John Carne, Peter Fayssoux, Henry C. Flagg, Oliver Hart, James Houston, Charles Lockman, James Martin, William Neufville, Joseph Prescott, Jesse H. Ramsey, William Read, Sylvester Springer, William S. Stevens, Frederick Gunn, Benjamin Tetard, Thomas T. Tucker, Samuel Vickers, and John Wallace.

David Oliphant served a short time as deputy director-general of the Army, but it is probable that he resigned in 1776, as he was appointed to a judgeship in that year. He was afterward elected to the State assembly of South Carolina.

¹A Review of the Improvements and Progress of Medicine in the Eighteenth Century.

In the Carolinas the following enactments were made by the colonial governments: An act relating unto the office and duty of a coroner, and settling and ascertaining the fees of same, enacted 1706, Stat. S. C., vol. 2, p. 269; An act for the more effectual preventing the spreading of contagious distempers, enacted 1712, Stat. S. C., vol. 2, p. 383; An act for preventing as much as may be the spreading of contagious distempers, enacted 1721, Stat. S. C., vol. 3, p. 127; An act for the better preventing the spreading of the infection of small-pox in Charleston, enacted 1738, Stat. S. C., vol. 3, p. 513; Acts additive to the act for preventing as much as may be the spreading of contagious distempers, enacted 1747, 1752, Stat. S. C., vol. 3, pp. 694-771; An act to prevent the spreading of infectious and contagious distempers in Charleston enacted 1749, Stat. S. C., vol. 3, p. 720; An act for the further preventing the spreading of contagious and malignant distempers in this province, enacted 1752, Stat. S. C., vol. 3, p. 773; An act appropriating for a pest-house and other purposes, enacted 1754, Stat. S. C., vol. 4, p. 10; An act for preventing as much as may be the spreading of contagious and malignant distempers in this province, and repealing the former acts heretofore made for that purpose, enacted 1759, Stat. S. C., vol. 4, p. 78; An act for preventing as much as may be the continuance of the small-pox in, Charleston, and the further spreading of that distemper in this province, enacted 1760, Stat. S. C., vol. 4, p. 106; An act for preventing as much as may be the spreading of the small-pox, enacted 1764, Stat. S. C., vol. 4, p. 182; An act reviving and amending the act of 1759, Stat. S. C., vol. 4, p. 572; An act appointing coroners, enacted 1715, Stat. N. C., ed. 1791, p. 10; An act to prevent malignant and infectious distempers being spread by shipping, importing distempered persons into this province, and other purposes, enacted 1755, Stat. N. C., ed. 1791, p. 170; An act to oblige vessels having contagious distempers on board to perform their quarantine enacted 1774, Stat. N. C., ed. 1791, p. 270; Statute de officio coronatoris, English statute in force in North Carolina, p. 13; Statute for the relief and ordering of persons infected with the plague, English statute in force in North Carolina, p. 353.

Robert Rose and Surgeon Vaughn served to the close of the war, in a regiment formed by the consolidation of the first and second regiments of South Carolina troops.

Dr. Louis Mattel, a native of France and a well-educated physician, practiced near Mouks Corner, in South Carolina, for many years. In 1756 he removed to Charleston and practiced in partnership with Dr. Savage. He died about the year 1775.

Joseph Rush, a native of Pennsylvania, a physician of the Revolution, settled after the war to practice on St. John's Island, S. C. He served as surgeon under Commodore Barry. His death took place December 20, 1817.

Alexander Baron, a native of Scotland, a graduate of Edinburgh, in 1768, immigrated to America and settled in Charleston the following year. His acquirements attracted attention, and Drs. Millengen, Oliphant, and Wilson, practitioners of extensive business at the time, assisted to introduce him. He died in Charleston, July 9, 1819, aged 74.

John Lochman, a surgeon of the Revolution, died in Charleston, August 16, 1819. He was a member of the Society of Cincinnati.

Dr. William Butler, a native of South Carolina, was a physician of distinction in the Edgefield district. He was the father of Hon. A. P. Butler. He died November 15, 1821, aged 67.

Tucker Harris, M. D., a native of Charleston, S. C., studied medicine with Lionel Chalmers, in Charleston. He received his medical degree at Edinburgh. On the breaking-out of the war he entered the military service as a surgeon, and continued in this position until the restoration of peace. He died July 6, 1821, aged 76.

Robert Wilson and his son Samuel were practitioners of reputation during two generations in Charleston. The latter died April, 1827, aged about 70.

William Read, a surgeon in the Revolution, died at Charleston April 20, 1845, aged 91. He was appointed by Congress, May 15, 1781, hospital-physician for the department of the South.

Lyman Hall, a native of Connecticut, a graduate of Yale College of 1747, having studied medicine, settled in Burke County, Ga. He afterward became governor of the State. He was an ardent patriot during the Revolution, and was sent by St. John's parish to the Continental Congress in 1775 and had the honor of signing the immortal document that signalized our independence.

NORTH CAROLINA.

The materials for a medical history of this State are few. Neither the population, the character of her public institutions, the size of her cities, nor the operations of the revolutionary war centered much within her boundaries.

Hugh Williamson, M. D., a native of Pennsylvania, a man of extensive information and fine professional acquirements, was an ardent and

influential patriot in the Revolution; was a surgeon in the militia under General Caswell; was a member of Congress and also a member of the convention that framed the Constitution of the United States. He displayed his abilities as an able writer upon every subject that he handled. He died in the city of New York in 1819, aged 83.

James Brehm, during the revolutionary war a surgeon in the infant navy, was a skillful physician of a philosophic turn of mind and a taste for scientific studies. He practiced his profession with success for nearly forty years at Warrenton, where he died, April 8, 1819, at an advanced age.

Lancelot Johnson, a surgeon of the Revolution, died in Caswell County, N. C., September 19, 1832. He served in the Ninth North Carolina Regiment, which was employed chiefly in the South.

Robert Williams died in Pitt County, N. C., October 12, 1840, aged 82. He had served as a surgeon in the Revolution. He was an able physician and a gentleman of superior intelligence and ability. His public services were numerous, and he took part in the committee from North Carolina that ratified the Constitution of the United States.

Nathaniel Alexander, of North Carolina, graduated from Princeton in 1776, and, having studied medicine, entered the Army as a surgeon's mate. Upon the termination of the war he settled at the High Hills of the Santee, where he practiced. He subsequently removed to Mecklenburg, was elected to Congress, and while occupying a seat in that body was chosen governor by the legislature of his State. He died at Salisbury, March 8, 1808, in the fifty-second year of his age.

The following medical men of North Carolina rendered assistance to the American revolutionary army in their professional capacity:

Joseph Blyth, James Fergus, James W. Green, and Solomon Holling.

Surgeon Samuel Curtis died March 31, 1822, in Hillsboro' County.

David Love was surgeon of the North Carolina brigade and was captured by the enemy August 1, 1781, and confined in New York.

William McClure and William McLain entered the Army as early as 1775 or 1776. He died at Lincoln, N. C., October 25, 1828.

EARLY MEDICAL TRAINING IN NEW ENGLAND.

Though the New England States did not lead in medical education their chronicles contain the earliest authentic mention of medical matters and instruction in America.

Giles Firmin, as early as 1647, it would seem, delivered lectures or readings on human osteology, and is said to have had the first "anatomy" in the country, "which he did make and read upon very well." Dr. Firmin returned to England in 1654, was ordained a minister, and died in 1697, aged 80 years.¹

In 1771, twelve years before the medical department was organized, a

¹New England Historical and Genealogical Registers, vol. iv, p. 11.

number of undergraduates of Harvard banded themselves together for the secret study of practical anatomy. Secrecy was a necessity, as dissection and desecration were, in those days, synonymous in the minds of the people. In Massachusetts, and perhaps other States, the practice was a felony for sixty years later.

Who the instructor of this class was is left to conjecture. Possibly it was Joseph Warren, afterward the hero of Bunker Hill. He had recently completed his medical apprenticeship of seven years, according to the usage of the period, and was beginning to practice in Boston. His brother John, in 1783, was instrumental in founding the medical department of Harvard University and was also a member of the senior-class referred to.

CONNECTICUT PHYSICIANS.

Phineas Fiske, born at Milford, Conn., practiced medicine at Haddam, Conn., where he died, 1738, aged 85. He was the fourth graduate of Yale College in 1704. He was a minister and contemporary with Dr. Jared Eliot and distinguished for his skill and success in curing epilepsy and insanity.

Moses Bartlett practiced medicine in Portland, Conn., for over 30 years and died in 1766. He was the son-in-law of Dr. Phineas Fiske, with whom he studied both medicine and theology.

Abijah Moores practiced medicine for many years at Haddam, Conn., where he died in 1759.

Eliot Rawson, a native of Dorchester, Mass., practiced medicine with success for many years at Haddam, Conn., where he died in 1770.

Thomas Levenworth, a native of Connecticut, died at Woodbury, where he practiced for years. He died in 1673.

James Hurlburt, a native of Berlin, Conn., died at Wethersfield, April 11, 1774, aged 56. He was a man of genius and learning, but towards the close of his life became addicted to the extreme use of opium. He was a favorite preceptor for some years with young men studying medicine, all of whom retained great respect for his judgment and learning.

David Atwater was a surgeon in General Wooster's brigade. He was killed in May, 1777, in the capture of Danbury by the British. The general was also killed in the engagement.

Edward Sutton was a surgeon in the northern department during the war, but died of dysentery, while in service, September 6, 1776.

Abriham Peet, a native of Bethlehem, Conn., after studying his profession, settled at Canaan, where he had a large practice. He died in the year 1786, at the age of 47.

Norman Morrison, a highly-educated physician, a native of Scotland, came to America and settled at Wethersfield, Conn., in 1740, but in a couple of years removed to Hartford, where he acquired a large practice, which he retained till the time of his death.

Joseph Perkins, a native of Norwich, Conn., an eminent physician and surgeon, practiced his profession in his native place, where he died 1794, aged 90. He was a graduate of Yale College in 1727. He was one of the most accomplished physicians and surgeons of his time, performing with success many daring and capital operations.

Oliver Wolcott, a native of Windsor, Mass., a graduate of Yale in 1747, was not only a good physician, but an ardent patriot during the Revolution, and held many important offices. He was a member of the Continental Congress and most of his life was devoted to public practice. He died December 1, 1797, aged 71.

Elihu Hubbard Smith was a native of Litchfield, Conn. He died of yellow fever in New York City, September 19, 1798. He was a graduate of Yale; studied medicine and settled in New York. Associated with Doctors Mitchell and Miller, he started the first medical journal in the United States, known as the New York Medical Repository.

Doctor Campbell was appointed surgeon's mate in Colonel Chapman's regiment of Connecticut volunteers in 1778 for coast-duty.

Dr. Elias Carrington, of Connecticut, was appointed by the legislature of that State, in October, 1776, as one of a board to examine applicants for the positions of surgeons and surgeon's mates in the Army.

Dr. Abel Castine, of Farrington, Conn., served as a surgeon during the Revolution. He died, at an advanced age, December 23, 1831.

Dr. Mason Fitch Cogswell, of Connecticut, was a surgeon in the Revolution. After the war he settled at Hartford. In 1803 he ligated the carotid artery.

John Dickinson was a physician, and died in Middleton, 1811, aged 82. He had held many offices of trust and was greatly esteemed.

Connecticut had many physicians of high literary and professional attainments and some who were noted for their large classes of private students. In this colony there are numerous examples of the clerical and medical professions combined in the same individual, and among the latest of this class was the Rev. Jared Eliot, who died in 1763.

Daniel Porter, celebrated as a bone-setter and general practitioner, was allowed an increase of salary in 1670, on the implied condition that he would "instruct some meet person in the art for which he was so distinguished."

The first medical degree granted on this continent is believed to be that conferred on Daniel Turner by Yale College, in 1720. As this degree was an honorary one and intended to be complimentary to Doctor Turner, who had been a liberal benefactor to the college, it was waggishly interpreted to signify *multum donavit*.

The medical department of Yale College was not regularly organized until 1813. This colony was quite celebrated, from its first settlement, for the number of its intelligent physicians, and next to Massachusetts advocated the most advanced theories of public education. Many of her physicians, from their superior acquirements and skill, occu-

pied responsible positions under the government in colonial times, and in the Army during the Revolution; yet we do not find that they have contributed greatly to the literature of the profession.

Dr. John Ely established a hospital at Saybrook, in 1770, for the inoculation of the small-pox, (the first institution of the kind in the State,) which he conducted in an acceptable manner and with good success. He commanded a regiment of American troops during the revolutionary war. Died in 1800, aged 63.

Benjamin Gale, a native of Long Island, born 1715, published a treatise in 1750 on inoculation in America and advocated the preparation of the patients by a course of mercury. This was a meritorious work, and attracted attention from the profession in Europe, as well as in America. He published also in 1763 an essay on "The bite of the rattlesnake." He died at Killingworth, Conn., 1790.

Jared Eliot, a physician of distinction, was also a minister. He was a graduate of Yale College in 1706 and died April 22, 1763, aged 78.

Josiah Rose, a native of Wethersfield, studied medicine in Boston and was a leading physician and surgeon of his day. He had five sons, who studied medicine and were surgeons in the revolutionary war. He died in 1786, aged 70.

Drs. John Bird, of Litchfield; Perry, sr., of Woodbury; James Potter, of New Fairfield; and William Jepson, of Hartford, were all prominent physicians in colonial times and about the close of the last century.

John Bulkley, a native of Colchester, combined the two professions of medicine and theology; was an exceedingly popular and influential person throughout the State, and held various offices of honor and trust. He died in 1754, aged 50.

Drs. John Simpson, John Noyes, John Watrous, and John Rose all held honorable positions as surgeons in the revolutionary army.

The Medical Society of the County of New Haven was instituted in 1784 and published a volume of cases and observations in 1788, which is among the earliest publications of the kind in our country.

John Osborne, a native of Massachusetts, was born in 1713. He was a distinguished physician, scholar, and poet, and was an alumnus of Harvard, in which institution he was proffered, but declined, a tutorship. Having studied medicine, he practiced at Middletown until his death, May 3, 1753.

Dr. John Osborne, his son, was born March 17, 1741, and, after practicing medicine at Middletown sixty years, died in June, 1825. He was in the medical department of the army in 1758, during the French and Indian war. He became a learned botanist and chemist.

Isaac Mosely graduated from Yale in 1762, studied medicine, and commenced practice at Glastonbury. His adherence to the British cause led to his removal to England. He was the author of a medical essay which attracted considerable professional attention.

Elizur Hale, of Glastonbury, graduated from Yale in 1742 and, having studied medicine, settled in his native town to practice. He died May 27, 1790, after having assiduously performed the duties of his calling forty-four years. He once represented that town in the general assembly.

His son, Elizur, also a practitioner, died in Glastonbury, December 6, 1796.

Elisha Phelps and Rev. Moses Bartlett, practitioners of medicine, resided at Portland from 1733 to 1766. The latter studied both medicine and theology with Dr. Phineas Fiske, of Haddam, himself a medico-theologian.

Dr. Aaron Roberts, of Cornwell, served throughout the revolutionary war as a surgeon and in 1783 removed to New Britain, where he died November 21, 1792, aged 62.

Moses Bartlett, son of the Rev. Moses Bartlett, also a physician, studied medicine with Dr. Benjamin Gale, of Willingworth, (now Clinton.) After completing his studies, he commenced practice in Portland. Died in 1810. His brother also studied under Dr. Gale, and located and practiced in Ashfield, Mass.

Asaph Coleman, a native of Colchester, was admitted to the practice of medicine by the Connecticut Medical Society in 1774. He located at Glastonbury, but, upon the breaking out of the Revolution, entered the Continental Army as surgeon to the Connecticut troops. He was several times elected representative to the general assembly. Died November 15, 1820, aged 73.

Dr. John Dickison, son of the Rev. Moses Dickison, of Norwalk, commenced practice at Wallingford, but by invitation of the selectmen removed to Middletown, where he acquired a good reputation and an extensive practice. As a representative, he occupied a seat in the legislature during the struggle for independence. After that period he relinquished the practice of medicine, and in 1793 was appointed judge of probate, and in 1796 judge of the county-court, both of which offices he retained until his death, in 1811, in the eighty-second year of his age.

Elisha Belcher was born in Preston, (now Lebanon,) in the year 1757, and, having received a good preliminary education, studied medicine. At the commencement of the revolutionary war he was appointed surgeon's mate in the Continental Army, and during that momentous struggle participated in many battles, and was finally promoted to a surgeoncy. He settled at Greenwich upon the cessation of hostilities, and not only did his reputation extend to the limits of his own county, but reached those of Westchester County, in the adjoining State, (New York.) He died in December, 1825, at the age of 69.

Eneas Munson was born at New Haven, June 24, 1734, and died June 16, 1826. He graduated at Yale in 1753 and was immediately appointed tutor in that institution. In 1755 he was appointed chaplain in the army, during the war with the French and Indians, but, soon

leaving the military service, turned his attention to medicine, the study of which he began under Dr. John Darby, of East Hampton. Upon the completion of his studies, he settled at Bedford; served as a surgeon in the Continental Army, and was elected president of the Connecticut Medical Society; in 1760 moved to the town of his nativity, where he died.

Amos Skeele entered the Continental Army at the commencement of the war. Being wounded in the right arm, he left the military service and determined upon the study of medicine. He studied in Litchfield and afterward with Dr. Hastings, of Bethlehem. He began the practice at Haddam, but, after practicing in several places, finally settled at Chicopee, Mass., where he died, March 2, 1843, at the age of 93.

Robert Usher, a native of East Haddam, studied medicine with Dr. Huntingdon, of Windham, and began practice in 1762 at Chatham. In January, 1776, he entered the Continental Army as surgeon of Colonel Wadsworth's regiment, and served some time in that capacity, and died in the year 1820, aged 77.

CONNECTICUT SURGEONS IN THE REVOLUTION.

The following-named physicians of Connecticut served in their professional capacity in the American revolutionary army: David Adams, Isaac Brunson, Noah Coleman, Timothy Hosmer, Timothy Mather, John Noyes, John Rose, John Simpson, Justus Storrs, John R. Watrous, Samuel Lee of Windham, Aaron Roberts of New Britain, Albigeren Waldo of Windham, Laurett Hubbard of Hartford, and Isaac Smith of Greenwich.

Jared Potter and Witham Gould were commissioned, July 3, 1776, surgeon and surgeon's mate, respectively, of Col. William Douglas's regiment.

Surgeon David Holmes died March 20, 1779.

Thomas Skinner was commissioned in the medical department of the Army in 1775 or early in 1776.

The names of many other Connecticut physicians deserving of mention might be added if time and space permitted. No legislation that is deemed remarkable in its effect on the profession has been enacted in the State.¹

¹ The following laws were enacted in Connecticut during the colonial government: An act providing in case of contagious sickness, enacted 1711, Stat. Conn., ed. 1715, p. 160; An act to prevent the small-pox being spread in this colony by pedlars, hawkers, and petty chapmen, enacted 1722, Stat. Conn., p. 270; Physicians and chirurgeons to be exempt from performing military duty, enacted 1722, Stat. Conn., p. 78, act regulating militia; Physicians and chirurgeons to be taxed and rated as others, enacted 1722, Stat. Conn., p. 282; An act amending the act of 1711, enacted 1728, Stat. Conn., p. 352; An act providing in all cases of contagious sickness, enacted 1729, Stat. Conn., 1750, p. 225; An act providing in case of infectious diseases, enacted 1732, Stat. Conn., p. 391; An act additive to the act of 1729, requiring that all goods coming from infected places be aired before exposure for sale, enacted 1752, Stat. Conn., ed. 1769, p. 265; An act additive to the foregoing, providing for vessels coming from infected ports, enacted

EARLY PHYSICIANS IN RHODE ISLAND.

Dr. John Clark, formerly a physician of London, was one of the founders of Rhode Island. He originally settled in Boston, but was banished, and, with Roger Williams, sought an asylum in the new region to the south. When the church in that colony was organized, in 1644, he was appointed pastor and in 1649 was made assistant treasurer of the colony. He died at Newport, April 20, 1676, at the age of 67 years, leaving a reputation unsurpassed for purity of life.

Dr. William Hunter, a Scotchman by birth, and a member of the distinguished family of that name, came to the colony of Rhode Island in 1752. He lectured upon anatomy and surgery in the years 1755 and 1756, not only to medical men and students, but to the literary gentlemen of the city of Newport. He also served as a surgeon in the French and Indian war. An oil-portrait of the doctor is in the possession of Mr. Hunter, of the State-Department, in Washington, who is a lineal descendant of the doctor.

Dr. Haliburton, a contemporary of Dr. Hunter, was his rival in talent and professional ability.

Dr. Bowen, a physician of eminence, resided in Rhode Island, and enjoyed the confidence of the people as early as 1640, probably coming in with the second party from Massachusetts.

In 1663, Capt. John Cranston was licensed by the general court "to administer physicke and practice chirurgerie," and had conferred upon him the degree of M. D., in the following words: "And is by this court styled doctor of physick and chirurgery by the authority of this the general assembly of this colony," (Rhode Island.) This may be claimed, perhaps, to be the first medical degree conferred in America.

Pierre Ayrault, a French refugee, who settled in the colony in the year 1686, was a practitioner of physic.

Drs. John Bret and Thomas Moffatt enjoyed medical reputation as early as 1751. The estate of the latter, on account of his British proclivities, was forfeited in 1775.

Dr. Ephraim Bowen, the originator of the order known as the Daughters of Liberty, was practicing his profession in Rhode Island in 1766.

Jabez Brown, a native of Seekonk, R. I., was practicing medicine at Providence as early as the year 1700.

A son of his, Jabez Brown, and Benjamin West, practitioners of medicine, assisted Joseph Brown, of Providence, in determining the latitude and longitude of that town during the transit of Venus, in 1769.

John Mawney, a medical student, rendered professional services to

1756, Stat. Conn., 1769, p. 281; An act additive to the same, regulating inoculation, enacted 1760, Stat. Conn., 1769, p. 298; An act additive to the same, concerning inoculation, enacted 1760, Stat. Conn., 1769, p. 300; An act additive to the same, concerning inoculation, enacted 1761, Stat. Conn., ed. 1769, p. 302; An act reviving the original act of 1729, with all its additions, enacted 1769, Stat. Conn., ed. 1769, pp. 305-344; An act for the suppression of mountebanks, (dealers in quack medicines,) enacted 1773, Stat. Conn., p. 389.

Duddington, who was wounded in an expedition commanded by Capt. Abraham Whipple, in 1772.

Jonathan Arnold, a physician of Providence, was a deputy to the Continental Congress in 1776, a strenuous opponent of the claims of the King. In 1782 he sustained Mr. Howell in his protest against the infringement by Congress upon the rights of the State and was re-elected to Congress in the following year.

Isaac Senter, a native of Londonderry, N. H., was studying medicine at Newport when the news of the battle of Lexington reached him; and, filled with patriotic ardor, he immediately joined the Rhode Island troops as surgeon of a regiment. He accompanied the secret expedition of General Arnold to Quebec in 1775 and kept a private journal of the march. He was taken prisoner, but was afterward released. In 1779 he retired from the Army, and commenced practice at Cranston, and subsequently removed to Newport. From the former town he was sent as a representative to the general assembly. He was appointed physician and surgeon-general of the State, and contributed several papers to the literature of medicine; one, *An Account of a Singular Case of Ischuria*, published in 18th vol. *Memoirs of the Medical Society of London*. He died in 1799.

Richard Bowen was a physician in practice at Seekonk, R. I., as early as 1680. His residence was in proximity to Providence and he visited the sick of that place.

Norbert Felician Vigneron was a native of France; was an educated physician; emigrated with his family and settled in Newport, R. I., in 1690; pursued the practice of his profession until the time of his death, 1794, aged 95. His son, Charles Antonius Vigneron, also studied medicine, and practiced in Rhode Island and in New York, where he died of small-pox in 1772. A son of the late Stephen Vigneron was a surgeon in the United States Navy during the revolutionary war, but was lost at sea.

Thomas Redman, a native of England, was educated to the profession of medicine. In 1680 he settled to practice at Newport and was a popular physician. He died in 1727, aged 80.

Joseph Hewes, a surgeon during the revolutionary war, practiced at Providence. He was the preceptor of many young men who rose to eminence in the profession. He died September 30, 1796, aged 82.

Sylvester Gardner, a native of South Kingston, R. I., died at Newport, August 8, 1796, aged 69. He had received a good classical and medical education. He settled to practice in Boston, where he acquired wealth. On the breaking out of the war he sided with Great Britain, and abandoned all his property. After peace was restored he returned to Newport and again engaged in practice with success and reputation.

Daniel Lee, a physician of some note, died of yellow fever at West-erly, Washington County, R. I., September 10, 1798, aged 41.

William Bradford, a native of Plympton, Mass., was an accomplished

physician, and practiced for half a century in Bristol, R. I., where he died July 6, 1808, aged 79. He was a lineal descendant of Hon. W. Bradford, one of the Pilgrim Fathers. In addition to his practice as a physician he studied law, and for years was one of the leading men in the State and an ardent patriot in the Revolution.

Ephraim Bowen, qualifying himself for the practice of medicine, settled in Providence, R. I., where he spent a long and useful life. He died October 12, 1812, aged 96.

Daniel Peck Whipple, a native of Rhode Island, was a surgeon in the revolutionary war, serving part of the time in the Navy and part in the Army. He died in Cumberland, R. I., May 19, 1814.

Amos Throop, a native of Connecticut, studied medicine and settled in Providence, R. I., and engaged actively in practice until his death, April, 1814, aged 76. He was the first physician in Providence who set up as an obstetrician. He was the first president of the Rhode Island Medical Society. He also filled offices of honor and trust in the State.

Peter Turner, a native of Newark, N. J., at the commencement of the war was commissioned surgeon of Colonel Green's Rhode Island regiment. He had settled to practice at Greenwich. After the war he returned to his practice, which was large and lucrative to the time of his death, which occurred February 14, 1822, at the age of 71.

Pardon Bowen was born in Providence, R. I. He was a physician of great eminence; was a graduate of Rhode Island College (now Brown University) and a surgeon in the Revolution. He was through life a close observer and wrote some valuable papers, one particularly on yellow fever. He died at Norwich, R. I., aged 69.

Samuel Tenny, a native of Byfield, Mass., was educated at Harvard College, and studied medicine. He rendered medical services at the battle of Bunker Hill and served as a surgeon in the American Army in Colonel Israel's Rhode Island troops. At the close of the war he settled at Exeter, N. H., where he remained until his death, in the year 1816. He was judge of probate for many years and was elected to the United States Congress in 1800, and served to 1807. His death occurred in 1816.

The following gentlemen served as surgeons in the Rhode Island provincial troops during the French and Indian war: John Bass, (who was also a chaplain,) Benjamin Brown, Thomas Mouroe, Christopher Nichols, and Thomas Rodman.

John Bartlett, Nicholas N. Bogart, John Chace, Joseph Rhodes, Ebenezer Richmond, Levi Wheaton, John Parish, and Joseph Bowen, who served as surgeons in the American revolutionary army, were all residents of this State.¹

¹The only act passed by the colonial government of Rhode Island of interest in our present inquiry is one entitled "An act to prevent the spreading of the small-pox and other contagious diseases in this State," which was enacted in 1743 and revived and revised in 1748.—(Stat. R. I., ed. 1798, fo^o. 335.)

MEDICAL SCIENCE ELSEWHERE.

Going farther southward, we find in New York the earliest recorded instance of a demonstration from the cadaver for the instruction of students.

In 1750 Drs. Middleton and Bard injected and dissected the body of an executed criminal before their students. In the same city Dr. Samuel Clossy, a Dublin graduate, began courses of lectures on anatomy.

In the Jerseys, Thos. Wood, surgeon, in 1752, advertised through the New York press "A course on osteology and myology in the city of New Brunswick," of about one month's continuance, to be followed, if proper encouragement was given, by a "Course on angiology and neurology," and conclude with performing all the operations on the dead body.

EARLY PHYSICIANS IN NEW JERSEY.

The earliest physician in New Jersey of whom we have any record was Abraham Peirson, also a minister of the gospel, a native of Yorkshire, England. He graduated at Cambridge in 1632 and immigrated to Boston in 1639. He removed to Southampton, R. I., and subsequently, in 1667, to Newark, N. J., and was the first minister of that town. He died August 7, 1678.

Dr. Jonathan Dickinson, a native of Hatfield, Mass., was the first president of Princeton College (formerly the college of New Jersey) and the first pastor of the Presbyterian church of Elizabeth. He was also a practicing physician of considerable repute during the first forty years of the last century. He died October 7, 1747, aged 59 years.

William Turner studied medicine with Dr. N. T. Pinquerou, a Frenchman from the province D'Artois, who had settled in Newport, R. I., in 1690, and, having finished his studies, removed to Newark, where he practiced his profession probably to the time of his death, which occurred subsequently to 1750.

Daniel Cox was a physician in extensive practice in London, but it is doubtful if he practiced in America. In 1690 he purchased the greater part of West Jersey, and was constituted governor of his grant. He appointed a deputy, however, rather than relinquish his professional business, and eventually sold his right to Sir Thomas Lane.

Dr. Jacob Arents, a Hollander, was naturalized in the year 1716, and practiced medicine in Newark from that time until the year 1750.

John Rockhill, a member of the Society of Friends, was born in Burlington County, March 22, 1726, and studied medicine under Dr. Thomas Cadwallader, of Philadelphia. He settled at Pittstown in 1748 and enjoyed a remunerative and extensive practice for nearly fifty years. He died April 7, 1798.

Dr. John Gerard Shults practiced medicine in Essex County as early as 1730. He is supposed to have been a native of Holland, who came originally to New York, but subsequently removed to New Jersey.

Elijah Bowen, the earliest practitioner of medicine in Cumberland

County, began practice at Shiloh in 1730 and continued until his death, which took place September 26, 1773, at an advanced age. Tradition says that he used vegetable-remedies only.

Dr. Elijah Bowen, jr., son of the preceding, was born in Cohansey in 1714, and died, December 21, 1765, at the age of 51, at Hopewell. Like his father, he obtained his remedies from the vegetable-kingdom.

Dr. Seth Ward, a native of Connecticut, came to Greenwich in 1760 and practiced until his death, which occurred, February 27, 1774, at the age of 38 years.

Gersha'm Craven graduated at Princeton College in 1765 and, having attended medical lectures at the University of Pennsylvania, located at Rangoes, in 1771, where he became popular and very successful in his profession. He died, May 3, 1819, at the age of 75 years.

Jonathan Elmer was born at Cedarville, November 29, 1745, and, having finished his preliminary education, commenced the study of medicine with Dr. John Morgan, of Philadelphia. He attended the first course of lectures delivered in the medical school of the University of Pennsylvania, received the degree of M. B. in 1768, and commenced the practice of his profession at Roadstown, but afterward removed to Bridgeton. In 1771 the degree of M. B. was conferred upon him. In 1772 he was appointed sheriff of Cumberland County, but was deposed for expressed hostility to British encroachments. He was also, respectively, a delegate to the Provincial and Continental Congresses, an officer in the American revolutionary army, clerk of the county, judge of probate, a United States Representative, and Senator. He died September 3, 1814, aged 72 years.

Dr. Robert Halsted was born September 13, 1746, and died at Elizabethtown in 1825. He was an able physician, and having rendered services to the continental soldiers he was imprisoned by the British on the information of a tory neighbor.

Thomas Ewing, the great grandson of Finley Ewing, an Irish patriot who had been presented with a sword by King William for bravery at the battle of the Boyne, was born at Greenwich, September 13, 1748. He received a classical education and began the study of medicine with Dr. Samuel Ward, of Greenwich; but upon completing his studies removed to Cape May, where he commenced practice. After the death of his preceptor he returned to his native town and practiced there until his death, which was caused by consumption, October 7, 1782. He received an appointment as surgeon, and afterward as major, in the American Army and served during the revolutionary war.

Dr. Deancy practiced medicine at Newark as early as the year 1748.

Dr. George Andrew Veisselius, a native of Germany or Holland, immigrated to this country in 1749 and located himself at Three Bridges, where he afterward married. He was a skillful and successful physician. After his death, in 1767, his wife, an amiable and intelligent woman, was frequently called upon by her neighbors for medical advice.

Dr. Uzal Johnson, born April 17, 1751, died May 22, 1827, was a practitioner of medicine. He was elected to the Provincial Congress in 1775, but declined the position and entered the British army. Being lame, he always rode in a small-wheeled carriage, upon the panels of which was emblazoned the motto "Non nunquam paratus."

Dr. Caleb Halsted, son of Dr. Robert Halsted, was born in Elizabeth, September 5, 1752, and died, August 18, 1827, at the age of 75 years. He was a leading physician of his day and rendered professional services to many French families of the nobility who settled in and about Elizabeth. When General Marquis de La Fayette came to this country, in 1825, he paid a visit to the doctor, then in his seventy-third year.

Ebenezer Elmer, brother of Dr. Jonathan Elmer, was born at Cedarville, in 1752. Having received a classical education, he studied medicine, but before completing his course he entered the Army as an ensign, which position, however, he resigned, in 1777, for an appointment in the medical department of the Army. In 1789 he was elected speaker of the general assembly, and afterward a Representative in the United States Congress, and was also a general of militia during the war of 1812. He held at various times during his life numerous State- and Federal offices and died, October 18, 1843, in the ninety-first year of his age.

John Darby, a Presbyterian divine and also a physician, practiced medicine at Parsippany as early as 1750. He died in 1805, aged 80 years. His son, Henry White Darby, having graduated at one of the eastern colleges, studied medicine and practiced at Parsippany, where he died, in December, 1806, at the age of 48 years.

John Hanna, a native of Ireland, graduated at Princeton College in 1755, studied medicine and theology, and was appointed pastor of the Presbyterian church at Bethlehem, but subsequently at Kingwood, Pittstown, and Alexandria, at which latter place he died, November 4, 1801, at the age of 70 years. He maintained a good reputation as a physician.

Lewis Howell, a twin brother of Richard Howell, governor of New Jersey, was born, October 25, 1754, in Delaware, and removed to Cumberland County, New Jersey, with his parents, where he shortly afterward commenced the study of medicine with Dr. Jonathan Elmer. In 1777, having completed his studies, he was commissioned a surgeon in the Continental Army. On the day before the battle of Monmouth, he was taken suddenly ill, at Monmouth Court-House, and died on the day of the battle.

Dr. John Condict, born at Orange, July 15, 1755, was a practitioner with large professional business. He was a surgeon and afterward a colonel in the Continental Army, and also a member of the New Jersey legislature.

George Campbell was born in Tyrone County, Ireland, August 15, 1758, graduated at the University of Dublin, and studied medicine under Doctor

McFarlin. He immigrated to America while the revolutionary war was in progress and entered the American Army as a surgeon. At the close of the war he commenced practice in Franklin and soon acquired a large and remunerative business. In 1818 he was stricken with paralysis, which caused his death in the sixtieth year of his age.

Isaac Morse, a Quaker, descended of noble ancestry, was born at Rahway, August 5, 1758, and died at Elizabeth, July 23, 1825. He was a student under Dr. William Barnet. He was very popular as a citizen and his reputation as a physician was good.

Dr. James Johnson, a native of England, practiced at Roadstown previously to the time of his death, which occurred, May 25, 1759, in the fifty-third year of his age. He is said to have married the daughter of an Indian chief.

Samuel Moore Shute was born in Cumberland County, in 1762, and, although but 14 years old at the breaking-out of the Revolution, his name appears upon the records of the revolutionary war as an officer in the Army. After leaving the military service he entered the office of Dr. Jonathan Elmer as a student and on the completion of his studies settled in Bridgeton, where he died August 30, 1816, at the age of 54 years. He was one of the leading practitioners of the town and was appointed surrogate of Cumberland County by the governor of that State.

Dr. Bernard Budd was one of the fourteen original founders of the New Jersey Medical Society, which was organized in 1766 and incorporated in 1790. He was a surgeon in the revolutionary war, and his reputation as such was second to none of that period. His son, John C. Budd, was born May 26, 1762, at Morristown, and died January 12, 1845. His medical studies were prosecuted under Dr. John Condict, of Orange, and he was a skillful practitioner.

Oliver Barnet practiced medicine at New Germantown as early as 1765. He acquired an excellent reputation as a physician, but his patients often complained of his excessive charges. He died December 25, 1809, in the sixty-sixth year of his age, after having amassed a fortune of over eighty thousand dollars from his professional business.

John D. Williams was born November 5, 1765, studied medicine with Dr. Daniel Barret, and commenced practice at Connecticut Farms. He married a sister of the elder Governor Pennington and was appointed a magistrate for the county of Essex. He was the first president of the New Jersey Medical Society and died January 5, 1826.

The first resident physician of Flemington was Dr. Creed, who practiced there as early as 1765.

Aaron Forman, a practitioner of medicine, was born February 4, 1745, in Wales, and, having immigrated to this country, died in Hunterdon County, January 11, 1805. He was a prominent physician and surgeon, careful of his reputation and proud of his profession.

Dr. Samuel Johnson, a practitioner of medicine at Newark, died August 7, 1770, aged 36.

Dr. Paul Michlau, a physician of Elizabeth, was enrolled a member of the State Medical Society in 1772.

Dr. Ichabod Burnet, a native of Scotland, practiced medicine in Elizabeth. He died in 1774, at the age of 90. His son, William Burnet, was born December 2, 1730, and joined the American Continental Army (at the commencement of the struggle for independence) as a surgeon and in the fall of 1775 was appointed surgeon of the United States Hospital. In 1776 he was chosen to the Continental Congress and later was constituted physician and surgeon-general of the eastern district, which latter position he held until the close of the war. He died in 1791, aged 61.

Dr. John Griffith was practicing physic at Rahway at the time of the organization of the medical society and was president of it in 1790.

Robert Patterson, a native of Ireland, kept a store in Bridgeton in 1773, but, abandoning the mercantile business, commenced the study of medicine and after completing a course of studies entered the Army as an assistant surgeon. Cumberland County became the theater of his professional labors after his leaving the Army. In 1779 he was appointed professor of mathematics in the University of Pennsylvania; later, Director of the Mint, by President Jefferson; and finally, in 1819, was elected president of the American Philosophical Society. Died in 1824, aged 82.

Mathias Peirson was born in Orange, June 20, 1734, and spent his life in the practice of medicine in that town. He died May 9, 1808, aged 74. Descendants of his, bearing the same name, still adorn the profession in New Jersey and other States of the Union.

Dr. Edward Pigot was one of the earliest physicians of Essex County,

Drs. William Burnet, William Burnel, Jabez Campfield, Moses G. Elmer, Jacob Harris, Otto Bodo, Benjamin Stockton, and Garrett Tunison were surgeons to the New Jersey troops in the Continental Army.

FORMATION OF MEDICAL SOCIETIES.

In New Jersey a general or State medical society was organized on the voluntary principle in 1766 and was incorporated by the State in 1790. This was the second, if not the first, medical association of the country, and the only one that has survived which is known to have preserved records and transactions that antedate the Revolution.

Their desire to elevate the standard of medical education is evident, as rules were prescribed to its members at an early day in reference to receiving medical apprentices under their charge.¹

Its regulations provided that "The apprentice must be refused unless

¹ The following-named gentlemen were the founders and original members of the New Jersey Medical Society, which was established July 20, 1766:

Robert McKean, Christopher Manlove, John Cockran, Moses Bloomfield, James Gilliland, William Burnet, Jonathan Dayton, Thomas Wiggins, William Adams, Bernard Budd, Lawrence van Derveer, John Griffith, Isaac Harris, Joseph Sacket.

he has a competent knowledge of Latin and some acquaintance with the rudiments of Greek and will serve not less than four years, one of which may be spent abroad, and pay one hundred pounds, proclamation-money, as apprentice-fee." The general assembly of New Jersey, in 1772, for the first time, passed a law regulating the practice of medicine in the province, requiring all practitioners of medicine to be examined and licensed under the direction of at least two of the judges of the supreme court, upon due examination of his learning and skill in physic and surgery. This law followed closely the stipulations and preserved the spirit of an act passed in the colony of New York, in 1760, for the regulation of practice in the city of New York, and seems to have exercised a good influence.

John Morgan, immediately on his return to Philadelphia, in 1765, was instrumental in organizing a medical society, called the Philadelphia Medical Society, which was the first in Pennsylvania. An American medical society was formed in Philadelphia in 1783, of which Dr. William Shippen was president and Dr. Henry Stuber secretary. I have seen no record of its labors.

The College of Physicians of Philadelphia was established in 1787, and has always been the supporter of high ethics in the profession, and has done much in this regard. It has published numerous volumes of contributions to the literature of the profession.¹ The Delaware State Medical Society was organized in 1776. The Medical Society of Massachusetts was formed in 1781. The South Carolina Medical Association was founded 1789 and chartered by the legislature in 1794. The Medical Society of New Hampshire was formed in 1791; the Medical Society of Connecticut in 1784. The Medical and Chirurgical Faculty of the State of Maryland was incorporated in 1799.

EARLY PHYSICIANS IN PENNSYLVANIA.

Thomas Wynne,² a Welsh physician, and his brother, also a physician, settled in Philadelphia in 1682. They came with William Penn in the *Welcome*.³ He had a taste for public affairs and was elected member of the provincial assembly.

Griffith Owen was an English physician and among the early followers of Penn. He amputated an arm in 1699 at Chester.⁴ He died in 1717, aged 70. He left a son, a physician in practice.

John Goodson, also an English physician, was in active practice in Philadelphia as early as 1700.

Dr. Hodgson was also practicing at the same period in Philadelphia. Edward Jones, a physician of note, arrived in Philadelphia, June 13,

¹ Carson's History of the University of Pennsylvania, p. 222.

² Proud's History of Pennsylvania.

³ Carson's History of the University of Pennsylvania.

⁴ Journal of the life of Thomas Story, p. 245.

1682, and was probably one of the original immigrants to this colony. He was a son-in-law of Dr. Thomas Wynne.

Evan Jones, a brother of the former, came to the colony about the same time and was a prominent physician.

Christopher Witt, a physician of extensive learning, came to Philadelphia in 1704. He was eccentric in his habits and the vulgar suspected him of being a conjurer. He died in 1769, aged 90.

John Kearsley, an English physician, arrived in the colony about 1711 and Thomas Graeme in 1719. Graeme was a highly-educated physician and distinguished citizen. He was a popular member of the assembly and a champion of the rights of the people. He contributed largely to the building of Christ Church and left a valuable estate to endow a widows' hospital. He died in 1772, aged 82.

Lloyd Zachary, as early as 1720, was in practice.

Owen Griffith, a young man of promise in the profession, died in 1731, aged 25.

William Gardiner, a native of Germany, having been educated as a physician, immigrated to America and settled in Lancaster, Pa., where he practiced with reputation until he died in 1756, aged 45.

Phineas Bond, M. D., a native of Maryland, was regularly educated to medicine in Europe. He was a brother of Dr. Thomas Bond and settled to practice in Philadelphia, where he rose to eminence and enjoyed the confidence of the whole country. He died in 1773, aged 56.

Cadwallader Evans was born in Philadelphia; studied medicine and graduated in England. He settled in his native place. In 1759 he was one of the physicians to the Pennsylvania Hospital, a position which he held with ability to the time of his death in 1773, aged 57.

John Bartram, a native of Delaware County, Pa., and a son of a physician of the same name, who was killed by the Whitoc Indians in North Carolina, studied medicine and settled in Philadelphia. He was an eminent botanist, and explained and explored almost all the Atlantic coast and settled parts of North America. His contributions to the science of botany and natural history were numerous and valuable. He died in Philadelphia in 1777.

Thomas Cadwallader, M. D., was a native of Philadelphia; received a good classical education; studied medicine with Dr. Evan Jones; he also attended lectures in Europe. He was the first physician in Philadelphia to make dissections and subsequently assisted Dr. Shippen in his lectures before his class. He was among the earliest contributors to medical literature in America. In 1745 he published an "Essay on the iliac passion." He was one of the first corps of physicians appointed to the Pennsylvania Hospital in 1751. He was greatly beloved by all. He died November 14, 1779, aged 72.

Adam Simon Kuhn, a native of Germany, was brought when a child with his father, who settled as a farmer near Lancaster, Pa., in 1733. Having studied medicine he practiced in Lancaster. He was a good

classical scholar and a man of fine natural abilities and a great supporter of public education. He died July 23, 1780, aged 66.

George Glentworth, a native of Philadelphia, was educated to the medical profession in Europe, graduating in Edinburgh, in 1755. In 1758 he was a junior surgeon in the British army. He took sides with the patriots in the Revolution and was commissioned surgeon in the American Army and assisted in extracting the ball that wounded General Lafayette at Brandywine. He died in 1792.

James Hutchinson, a practitioner of Bucks County, Pa., died of yellow fever in Philadelphia in 1793. He was a physician of superior acquirements and an excellent chemist. He was a surgeon in the revolutionary war. He held at one time the chair of chemistry and materia medica in the University of Pennsylvania.

Samuel Preston Moore was a native of Philadelphia and son of Dr. Nicholas Moore, president of the True Society of Traders, who came to America with William Penn. He studied medicine with his father, was a good physician and of good business-habits. He inherited large landed property from his father and was treasurer of the general assembly. He was one of the early contributors and one of the first physicians appointed to attend the Pennsylvania Hospital. He died in Philadelphia, July 15, 1785, aged 76.

David Jackson, a surgeon of the revolutionary war, died in Philadelphia September 17, 1801. He was the father of Prof. Samuel Jackson, of the University of Pennsylvania.

William Irvine, a native of Ireland, was educated to the medical profession and was for some years a surgeon in the British navy. Having resigned, he immigrated to America and settled at Carlisle, Pa. On the breaking-out of the Revolution he took part with the colonies and filled numerous important posts as surgeon and as commander, with a rank as high as major-general. He was elected to and served in Congress from 1786 to 1788. He died July 30, 1804, in Philadelphia.

Absalom Baird, a native of Pennsylvania, was a surgeon in the Revolution. He died near Pittsburg, Pa., October 27, 1805.

John Redman, a native of Pennsylvania, was educated to the profession of medicine, and graduated at Leyden in 1748. He was one of the first corps of physicians in 1751 appointed to the Pennsylvania Hospital, a post he held until 1780. He possessed fine literary acquirements, was a close reasoner and a most excellent and judicious practitioner, and exercised great influence upon the profession in Philadelphia. In 1759 he published a defense of inoculation and advised the use of mercury in preserving the patient. He was the first president of the College of Physicians. He died March 19, 1807.

John Wilkins, a native of Pennsylvania, was a surgeon in Col. William Butler's regiment in the Revolution. He was subsequently in the commissary-department of the United States Army, and was therefore

better known as General Wilkins. He died in Western Pennsylvania in April, 1816.

Nathaniel Bedford was a well-educated English surgeon who settled in Pittsburg as early as 1783, probably the first educated physician to settle there. He practiced there with success during the remainder of his life and died about 1815. Dr. Peter Moway was his successor in practice.

George Logan was a native of Pennsylvania and grandson of James Logan. He received a good classical education and then studied medicine and received the degree of M. D. from the University of Edinburgh in 1779. He settled to practice at his homestead, "Stouton," in Philadelphia, and combined agriculture with the duties of his profession. He was popular both as a physician and as a citizen; was sent several times to the State-legislature. In 1798 he went to France for the sole purpose of endeavoring to prevent hostilities between that nation and the United States, and no doubt accomplished some useful purpose to that end. He was United States Senator from Pennsylvania from 1801 to 1807. He was a member of the Philosophical Society and other local associations. He died April 9, 1821.

Stephen Munroe was one of the early physicians in Fayette County, Pa. He practiced in Sutton, where he died, September 9, 1826, at an advanced age.

John Morgan, M. D., was born at Philadelphia in 1735 and in 1757 received the first literary honors conferred by the College of Philadelphia. Previous to his graduation he commenced the study of medicine with Dr. John Redman, and having completed his studies entered the Provincial Army as a lieutenant and surgeon in the war with the French and Indians; left the Army in 1760 and sailed to Europe for the purpose of finishing his medical education. In 1762 the degree of M. D. was conferred on him by the University of Edinburgh. He went to Paris, made an extensive tour of Europe, and was elected member of several learned societies. After his return home he began practice, was the co-founder with Dr. Shippen of the medical department of the College of Philadelphia, and was elected professor of theory and practice.

At the commencement of the Revolution he was appointed by Congress director-general and physician-in-chief to the hospital of the American Army, but was afterward removed on groundless charges preferred against him. He died, October 15, 1789, in his fifty-fourth year.

His publications were "A discourse on the institution of medical schools in Philadelphia," 1765; "A prize essay on the reciprocal advantages of a perpetual union between Great Britain and her colonies;" "A recommendation of inoculation," in 1776; "Vindication of his public character as director of the general hospital," 1777; and a number of papers in the Transactions of the American Philosophical Society, an institution of which he was one of the founders.

Dr. Prentice, of Carlisle, was a practitioner of medicine and surgery,

and rendered professional aid to the wounded of the English army after an engagement with the French and Indians, in April, 1756. Dr. Jami-son, surgeon of the provincial troops, participating in the battle, was missing.

Adam Kuhn, son of Dr. Adam Simon Kuhn, was born in Germantown, November 17, 1741, and died July 5, 1817, at the age of 76. He received a classical education and studied medicine with his father until the year 1761, when he sailed for Europe and entered the University of Upsal, under the celebrated Linnæus. After studying there one year, he matriculated at Edinburgh, whence he obtained his degree, June 12, 1767. On his return to Philadelphia, the following year, he was appointed professor of materia medica in the College of Philadelphia and, subsequently, professor of the theory and practice of medicine in the University of Pennsylvania. He was on the committee of safety and board of examining surgeons and was director-general of the hospital for New Jersey troops. He was a member of nearly all the American scientific societies then in existence.

Benjamin Rush was born on his father's plantation, fourteen miles from Philadelphia, December 24, 1745, and died at Philadelphia, April 18, 1813, at the age of 68. He graduated at Princeton before he completed his fifteenth year and studied medicine with Dr. John Redman and William Shippen, to the former of whom he was apprenticed for six years. In 1766 he sailed for Europe, matriculated at Edinburgh, and graduated in 1768 with the degree of doctor of medicine. At different times he filled various chairs in the University of Pennsylvania; also, in the College of Philadelphia; was physician-general of the hospital of the middle military department; was a member of the convention for draughting the Constitution of the United States, and for the last fourteen years of his life was treasurer of the United States Mint. He was a member of the Continental Congress in 1776, and as such his name is attached to the Declaration of Independence. He was a voluminous and varied writer, his works treating upon nearly all branches of science. He had great power for original observation and has left the impress of his genius on the theory of medicine in the United States which the lapse of a hundred years has not effaced.

The first regularly-bred physician of Dauphin County was Dr. McLeland, of Greencastle. He was very successful in his practice, which extended over an area of sixty miles.

Dr. William Shippen, sr., was the son of Edward Shippen, the immigrant. He studied medicine and practiced with success and reputation in Philadelphia during a long life. He was one of the founders of the College of New Jersey. He was one of the vice-presidents of the Philosophical Society and one of the first physicians of the Pennsylvania Hospital. He also served a term as a member of Congress. He died November 4, 1801, aged 89.

Dr. William Shippen, son of the above-named, of Philadelphia, was

born in 1736 and graduated at the College of New Jersey in 1754. He spent three years after his graduation in the study of medicine with his father, and at the age of 21 sailed for Europe, entered at Edinburgh, received the doctorate degree, and returned to his native city in the year 1762. On his return to Philadelphia he commenced a course of medical lectures on anatomy in 1762. He occupied at different times several chairs in the College of Philadelphia and University of Pennsylvania. In 1776 he entered the medical department of the Continental Army as Medical Director-General, but resigned, in 1781, that position, in order to devote his undivided attention to the medical school, of which he was one of the faculty. His death, which occurred July 11, 1808, was hastened, it is believed, by grief at the death of his only son.

Dr. Caspar Wistar, a member of the Society of Friends, was born in Philadelphia, September 13, 1761. At the battle of Germantown, although prohibited from participating on account of religious scruples, he assisted the American surgeons in attending the wounded, which was probably the foundation of his future avocation. He studied medicine with Drs. John Jones and John Redman and graduated at the University of Pennsylvania in 1782 with the degree of M. B. In 1783 he sailed for Europe, and, having entered the University of Edinburgh, the degree of M. D. was conferred upon him in 1786. While in Great Britain he was, for two successive years, president of the Royal Medical Society of Edinburgh and president of the Society for the Investigation of Natural History. On his return to America he was appointed physician to the Philadelphia Dispensary. Was a member of nearly all the learned societies in the city and was elected to various professorships in the University of Pennsylvania. Died of typhus-fever, January 22, 1818.

PENNSYLVANIA SURGEONS IN THE REVOLUTION.

The following gentlemen of the medical faculty of Pennsylvania served in the American Continental Army as surgeons:

William Adams, Richard Allison, Absalom Baird, Reading Beatty, Thomas Bond, James Brown, Andrew Caldwell, James Davidson, Robert Harris, Robert Johnson, Andrew Ladley, William Magaw, Hugh Martin, Matthew Mans, Thomas McCalla, Samuel A. McCoffrey, Alexander McCosky, John McDowell, Robert Nicholson, Peter J. Peres, Samuel Platt, John Rogne, John A. Sable, William Smith, George Stevenson, Alexander Stewart, Christopher Taylor, Joseph Thompson, Garrett van Wagener, Robert Wharry, John Wilkins, and Aaron Woodruff.¹

¹ I find upon examination that the following-entitled laws were enacted in Pennsylvania during the period of the colonial government: An act to prevent sickly vessels coming into this government, enacted 1700, Stat. Pa., ed. 1775, fol. 12; An act vesting the Province Island, and the buildings thereon erected and to be erected, in trustees, and for providing an hospital for such sick passengers as shall be imported into this province, and to prevent the spreading of infectious distempers, enacted

Christian Reineck was killed at Paoli, Pa., in the service. Abel Morgan, a surgeon of the Revolution, died July, 1795. Robert Nicholson, of York County, Pa., a surgeon in the Revolution, died August 15, 1798. Charles McCarter, a surgeon of the Revolution, died in 1800. John Rogers, a surgeon, died in New York, July 29, 1833. Samuel Sackett, a surgeon, died in Fayette County, Pa., February 13, 1833.

Surgeons John Lockman and Henry Malcolm died in Philadelphia County, the former August 16, 1819, and the latter April 18, 1831.

Surgeon John Ramsey died November 4, 1776. Surgeon Christopher Reinick died September 21, 1777. Dr. John R. B. Rogers died in New York, January 29, 1833. He had served in the revolutionary war as a surgeon in the Pennsylvania troops.

In Pennsylvania dissections were made for the benefit of the physicians of Philadelphia, if not anterior to, certainly as early as, 1751, by Dr. Thomas Cadwallader, a native of that city, who completed his professional studies in European schools.

He published in 1740 an essay on the "Dry gripes, with the method of curing the cruel distemper;" printed and sold by B. Franklin, Philadelphia, 1745. It is probable that the doctor's early dissections were to further illustrate his investigations in these diseases and that they therefore antedate all the autopsies for pathological studies in the United States.

Thomas Bond was a native of Maryland. He studied medicine with Dr. Hamilton, of Annapolis. Having acquired proficiency in his profession, he settled to practice in Philadelphia in 1734. He was one of the founders of the college which preceded the University of Pennsylvania. Dr. Franklin gave him credit for originating the project for the Pennsylvania Hospital. He was large-minded, well-informed, and painstaking in everything that related to his profession, and he published in 1754, in the *London Medical Observations and Enquiries*, an account of a "worm bred in the liver," and in 1759 a paper on the use of "bark" in scrofulous cases. Dr. Cadwallader Evans published in 1754, in *Medical Observations and Enquiries*, an account of a cure performed with electricity.

Dr. William Shippen, a pupil of John Hunter, was the first physician in America to systematize and give a full scientific course of lectures on anatomy.

He says in his letter to the trustees in September, 1765: "The institution of medical schools in this country has been a favorite object,

1742, Stat. Pa., ed. 1775, fol. 194; An act for the prohibiting the importation of German or other passengers in too great quantities in any one vessel, enacted 1749, Stat. Pa., ed. 1775, fol. 222; An act to encourage the establishing of an hospital for the relief of the sick poor of this province, and for the reception and cure of lunatics, enacted 1751, Stat. Pa., ed. 1775, fol. 228; An act supplementary to the act of 1749, regarding the importation of Germans and others, enacted 1765, Stat. Pa., ed. 1775, fol. 312; An act to prevent infectious diseases being brought into this province, enacted 1774, Stat. Pa., ed. 1775, fol. 505.

occupying my attention for seven years, and it is three years since I first proposed its expediency and practicability.”¹

The fee of admission to his course was “five pistoles; and any gentlemen who incline to see the subject prepared for the lectures and learn the art of dissecting, injecting, &c., are to pay five pistoles more.” The interest of these lectures was enhanced by the use of a set of large anatomical crayon-paintings and models, a then recent munificent gift of Dr. Fothergill, of London, to the Pennsylvania Hospital.

The annals of the province contain the names of many medical men who were eminent in the profession in Philadelphia prior to the Revolution and who were all zealous to advance and promote the dignity and character of medicine and medical institutions, but our space will not permit a reference to them.

PENNSYLVANIA HOSPITAL.

This excellent institution, chartered in February, 1751, had its origin in the benevolent mind of Dr. Thomas Bond, but the measure was ably seconded and its accomplishment promoted by the philanthropic Franklin and many liberal-minded citizens of the State of Pennsylvania, and it may be incidentally remarked that this institution had been from its inception, and for more than a century, identified with the progress of clinical medicine in America.

Six physicians and surgeons were appointed in 1751,² and arrangements made to receive patients in a temporary building. In February, 1752, the first patients entered. The new building was so far completed as to be in condition to receive patients in December, 1756.

PEST-HOUSES.

A hospital, or, as it was called, a “pest-house,” was erected on Fisher’s Island, afterward called Province Island. Hitherto, deserted or vacant houses on the outskirts of the city were used as temporary hospitals for the care of patients with contagious diseases.

Thomas Jefferson, in 1766, at the age of 23, went to Philadelphia to be inoculated, a cottage being rented for the purpose away from the city, near Schuylkill River.

A pest-house in Massachusetts was established as early as 1701. The necessity for hospitals of this character was caused by the frequent recurrence of the small-pox. Temporary hospitals of this character were opened in most of the colonies in which cities of any considerable size existed.

CLINICAL INSTRUCTION.

Dr. Thomas Bond, the steadfast patron and through life one of the attending physicians of the Pennsylvania Hospital, gave clinical in-

¹History of the University of Pennsylvania, p. 55.

²Physicians and surgeons first appointed to Pennsylvania Hospital in 1751: Drs. Lloyd Zachary, Thomas Bond, Phineas Bond, Thomas Cadwallader, Samuel Preston Moore, and John Redman.—(G. B. Wood’s Centennial Address, p. 12.)

struction to his class of students at the bed-side, from the opening of the institution, and in December, 1766, he submitted a nobly-conceived and well-written paper to the trustees, which has fortunately been preserved in the minutes of the journal of the institution, in which he sets forth the advantages and value of such bedside-instruction to medical students and recommends the opening of the institution, under proper regulations, to all medical students coming to Philadelphia.

MEDICAL LIBRARY OF THE PENNSYLVANIA HOSPITAL.

Out of the movement that inaugurated regular clinical instruction was developed the idea of founding the library of the Pennsylvania Hospital, which has become a great repository of medical literature and an institution of great service to the earnest student.

The plan adopted was that the fees for clinical instruction given in the hospital should be devoted, as the doctor suggested, to procuring books and preserving them for reference in the library.

The physicians of the Pennsylvania Hospital have, therefore, the credit of originating two most important measures for the advancement of medicine, namely, clinical instruction and the founding of the public medical library in the western continent.

The New York Hospital library was started in August, 1776.

EARLY PHYSICIANS IN MARYLAND.

As an evidence of the hardy and vigorous constitutions of the first *voyageurs* to the shores of Maryland, Father White, in his narration, remarks that "during the entire voyage no one was attacked with any disease;" but that, at Christmas, some having partaken immoderately of wine, which was freely distributed, thirty were seized with fever, twelve of whom died.¹

Among the early doctors who resided in Maryland, Dr. Gerrard is mentioned as the lord of St. Clement's manor, who, it is said, in 1642, upon the ground of some claim, seized the key belonging to the chapel near the fort at St. Mary's, erected and used by the Catholics, and in which also it is probable the Anglo-Catholics or Episcopalians worshiped before the arrival of any of their ministers.²

This joint use of the same building for worship by separate Protestant denominations, at different hours, was at that period not unusual, and indeed it is still continued even by the Catholics and Lutherans, in some parts of Germany, to the present day.

Dr. Jacob Lumbrozo, a Jew physician in Maryland in 1649, was accused of blaspheming, but escaped a trial in consequence of the pardon accompanying the proclamation in favor of Richard, the son of the lord protector, which was issued a few days after the accusation.³

¹Annals of Annapolis, p. 22.

²Davis's Day Star, p. 33.

³Davis's Day Star, pp. 65-66.

Dr. Luke Barber accompanied Governor Stone in his expedition in 1654 against the Puritans of Anne Arundel, for the purpose of reducing them to a submission and obedience to Lord Baltimore's government, and when they arrived at Herring's Creek the doctor and Mr. Coursey were deputed to go on before them to Providence (now Annapolis) with a proclamation addressed to the people of Anne Arundel.¹ In 1658 he was a member of the provincial court held at St. Mary's,² and in 1659 was one of the councilors or members of the upper house of assembly.³

In 1678, Edwards Husbands, a physician, was debarred, under £200 penalty, from practicing his profession⁴ on account of an alleged attempt to poison the governor and council; and, for menacing and cursing the assembly, was ordered to be whipped. But he probably escaped the fine which was imposed on him and the prohibition to practice, by Lord Baltimore's dissent to the act.⁵

Drs. George Buchanan and George Walker were among the commissioners appointed in 1729, by an act entitled "An act for erecting a town on the north side of Patapsco, in Baltimore County, and for laying out into lots 60 acres of land in and about the place where one John Fleming now lives," which is the present city of Baltimore.⁶

Dr. Buchanan, a native of Scotland, purchased lands and practiced medicine in Baltimore County as early as 1723.⁷ In 1745 Dr. Buchanan was appointed one of the commissioners when the towns of Baltimore and Jonestown were consolidated under the name of Baltimore Town.⁸

Dr. Walker, with his brother James, had practiced medicine in Anne Arundel for some years, but removed to Baltimore in 1715, where he died, in 1743.⁹

Dr. Dennis Claude was living in Annapolis as early as 1747, and resided in the house that was formerly the Annapolis Coffee-House.¹⁰

There was also a street at this time in Annapolis bearing the name of Doctor.¹¹ Dr. Samuel Owens was chosen delegate at the general election in 1757, and again in 1758.

Dr. William Lyon was a resident and land-owner in Baltimore in 1759.

Drs. John and Henry Stevenson were in Baltimore prior to 1763. The former conducted an extensive and prosperous trade with the parent and other European countries. The latter engaged in the practice of medicine and built a large and elegant residence near the York road.¹² In 1768 Dr. H. Stevenson converted this splendid house, which on that account was termed "Stevenson's folly," to the very laudable purpose of

¹ Annals of Annapolis, p. 47.

⁸ Annals of Baltimore, p. 26.

² Davis's Day Star, p. 66.

⁹ Ibid., p. 27.

³ Griffith's Sketches, Early History of Maryland, p. 18.

⁴ Bacon's Laws, enacted 1678.

¹⁰ Annals of Annapolis, p. 120.

⁵ Sketches, Early History of Maryland, p. 29.

⁶ Annals of Baltimore, p. 14.

¹¹ Ibid., p. 121.

⁷ Annals of Baltimore, p. 15.

¹² Annals of Baltimore, p. 41.

a small-pox-infirmary, by appropriating part of it for the reception of young gentlemen, whom he inoculated successfully before the practice had become general. The practice of vaccination was promptly introduced into Maryland; and, through the zealous efforts of Dr. James Smith, thirty years later, general and free vaccination was aided by the State.¹ In 1776 Dr. Stevenson, when the colonies declared their independence, withdrew from the country. He was, however, considered a man of sterling worth.

Charles Carroll was a practitioner in Annapolis as early as 1752. In this year he had laid out and surveyed an addition to the town and the lots were advertised for sale.

Gustavus Brown, a native of Scotland, was an educated physician, and served as surgeon in the British army. In 1708 he came to Maryland. In 1711 he married a daughter of Gerard Foulke, a gentleman of large wealth. The doctor's practice was large and lucrative, often extending far into the State of Virginia. He left numerous descendants and a line of able physicians by his name, "Gustavus." He died at Port Tobacco, Md., 1765, aged 76.

Thomas Noble Stockett, a native of Maryland, was a surgeon in the Revolution. His ancestral place was near Annapolis, where he settled after the war and acquired a large professional business. He died May 16, 1802, aged 55.

Alexander² Mitchell, a native of Scotland, and a well-qualified physician, practiced his profession at Bladensburg, Md., for some years, and where he died September 28, 1804, aged 36.

Gustavus Brown, a native of Maryland, was a physician of widespread professional fame, and died at his residence, "Rich Hills," near Port Tobacco, in 1804, aged 56. His medical degree was received from the University of Edinburgh. His practice for many years was very large. He was a personal friend of General Washington and was one of the physicians who were with him in his last illness.

John Nelson, a surgeon of the Revolution, died in Frederick, Md., in May, 1806. He married a Miss Washington, of Virginia.

John Archer, a native of Harford County, Md., was a patriot in the Revolution and a surgeon in the Continental Army. He was a graduate in the first medical class of the College of Philadelphia on the 21st of June, 1768, and received the degree of bachelor of medicine. He was an influential citizen and held many positions of honor in his State. An unbroken line of physicians of his descendants reside and practice with reputation in Maryland. He died in Harford County, Md., September 28, 1810, aged 69.

Charles Alexander Warfield, a patriot and a surgeon of the Revolution, died at Bushy Park, Anne Arundell County, Md., July 29, 1813. He was one of the band who burned the cargo of tea in the harbor of Annapolis just before the outbreak of the Revolution.

¹ Griffith's History of Maryland, p. 61.

Richard Henry Courts, a surgeon of the Revolution, practiced his profession afterward in Prince George's County, Md., up to the time of his death, in 1809.

Philip Thomas, a native of Maryland, was an eminent physician who practiced at Frederick, Md. He was president of the Medical and Chirurgical Faculty of Maryland at the time of his death, April 25, 1815. He was 68 years of age.

William Somerville practiced medicine for many years in Calvert County, Md. He removed to Baltimore, where he died, February 18 1816, aged 54.

Barton Tabbs, a native of St. Mary's County, Md., was a surgeon during the revolutionary war in the Maryland line, commanded by General Smallwood. He was a man of talent and an accomplished physician. He died in St. Mary's County, October 30, 1818, aged 61.

James Murray died at his residence in Annapolis, Md., December 17, 1819, aged 80. He had been a prominent physician in that place for nearly 60 years.

John T. Shaaf, a native of Frederick County, Md., was a practitioner of distinction at Annapolis towards the close of the last century. He then returned to Georgetown, D. C., where he practiced with success until the time of his death, April 30, 1819, at the age of 65.

John Peter Ahl, a surgeon of the Revolution, died in Baltimore, July 12, 1827, aged 78.

The following physicians were practicing in or near the town of Baltimore in 1771: Drs. Lyon, Hultz, Stenhouse, Weisenthall, Pue, Stevenson, Boyd, Craddock, Haslet, Gray, and Coulter.¹

Dr. Weisenthall was a Lutheran and assisted in erecting a church in 1773

In 1774 the Congress that had assembled at Philadelphia recommended the appointment of town- and county-committees throughout the colonies; and on the 12th of November, 1774, Dr. John Boyd was appointed on the committee representing Baltimore Town and County, also a member of the committee to attend the committee-meetings at Annapolis, and a member of the committee of correspondence for Baltimore.²

In 1774 Drs. Hultse, Weisenthall, Craddock, and Haslet were the attending physicians to the poor of Baltimore County.³

In 1775 James McHenry, a native of Baltimore, in company with several other gentlemen, volunteered his services to the Continental Army; he having made some progress in medicine, was appointed surgeon.⁴

In 1775 Dr. John Smith, of St. Mary's County, entered into an alliance with John Connolly, of Lancaster County, Pa., who had concocted a plan by which he could raise an army in the western parts, and there-

¹ Annals of Baltimore, p. 49.

² Annals of Baltimore, p. 36.

³ Annals of Baltimore, p. 58.

⁴ Annals of Baltimore, p. 59.

⁵ Annals of Baltimore, p. 64.

by cut off all communication between the northern and southern provinces. The plan was admirably conceived and might have succeeded, were it not for the extreme vigilance of the colonists, who, having received intelligence of their designs, effected their arrest in Frederick County. Congress directed that the prisoners should be forwarded to Philadelphia. This was accordingly done, under a special guard of ten men commanded by Dr. Adam Fisher. Dr. Smith, during the journey, escaped, but was subsequently retaken, and the prisoners were safely landed in Philadelphia.

In 1776 Dr. Patrick Kennedy, after the Declaration of Independence, retired from the country, not wishing to take part in the struggle, but openly avowing before his departure that, if he could not assist, he would not oppose them. He was a man of great private virtue, and was held in high repute by the citizens.

Gustavus Brown Horner, a native of Maryland, was an eminent practitioner of medicine in Fauquier County, Virginia. He was a surgeon's mate in the war of the Revolution. After the war he settled at Warrenton, and enjoyed the patronage of a large section of the State, and was the chief surgeon for years in all important operations. He was elected to the State-legislature, was presidential elector, and held other offices to which he was chosen by an admiring community. He died July 24, 1815, aged 51.

MARYLAND SURGEONS IN THE REVOLUTION.

Drs. Jonathan Calvert, Levin Denwood, Samuel Edmonston, John L. Elbert, Ezekiel Hanie, Elisha Harrison, Samuel Y. Keene, William Kilty, Alexander Lajournade, James Mann, David Morrow, Samuel Morrow, Richard Pindell, Alexander Smith, Thomas Tillotson, Walter Warfield, and Gerard Wood, all citizens of Maryland, served as surgeons in the American revolutionary army.¹

Clement Smith, a surgeon of the Revolution, died in Prince George's County, Md., December 10, 1831, aged 75.

Wilson Waters, a surgeon of the revolutionary war, died in Anne Arundel County, Md., February 5, 1836, aged 78.

Charles Worthington, a surgeon of the Revolution, died in Georgetown, D. C., September 10, 1836, aged 76.

John Tilden, a surgeon of the Revolution, and a minister as well as a physician, in New Town, Frederick County, Md., practiced there till the period of his death, July 21, 1838. He was 78 years of age.

¹The following enactments were made in the colony of Maryland: An act for appointing coroners in each respective county, enacted 1666, Bacon's Laws of Maryland; An act establishing coroners' fees, enacted 1731, Bacon's Laws of Maryland; An act to prevent the spreading and infection of the small-pox from a vessel belonging to Amos Woodward, merchant, enacted 1731, Bacon's Laws of Maryland; An act to oblige infected ships and other vessels coming into this province to perform quarantine, enacted 1766, Stat. Md., ed. 1765-'74, fol. 158; An act to continue the foregoing act, enacted 1769, Stat. Md., 1765-'74, fol. 158; An act to prevent infection from the ship Chance, enacted 1774, Stat. Md., ed. 1765-'77, fol. 393.

Henry Maynadier, a surgeon of distinction in the revolutionary war, died at Annapolis, November 11, 1849, aged 93.

Dr. Daniel Jennifer was commissioned a surgeon in the Continental Army August 26, 1776.

Ennals Martin received from the State the sum of four hundred and seventy-five pounds ten shillings and nine pence sterling as a remuneration for his meritorious services as a surgeon.

EARLY PHYSICIANS OF DELAWARE.

Henry Fiske, a native of Ireland, immigrated to America and settled to practice medicine at Lewes, Del., where he died 1748. His practice was extensive and lucrative, he often being sent for in Maryland and Pennsylvania. He had a taste for agriculture and horticulture and exercised a good influence over his section by giving practical examples of improvements, so that his place was called by his neighbors "Paradise."

Charles Ridgely, a native of Dover, Del., who, after acquiring proficiency in medicine, settled to practice in 1758, died November 25, 1785, aged 47. He was not only a good physician, but was possessed of a vast fund of knowledge in almost everything that related to the well-being of man. He was frequently sent to the legislature. Some years before the Revolution he was judge of Kent County; was a member of the committee that framed the new constitution, in 1776, for the State of Delaware.

Matthew Wilson, a native of Chester County, Pa., was a practitioner of medicine in Lewes, Del., for many years. He studied both medicine and theology, and died in 1790, aged 61. He was a man of active brain, a thorough scholar, and animated by benevolent impulses through life; was an ardent patriot, and spoke with effect against the stamp-act. He contributed many papers on medical subjects: "A therapeutic alphabet," which was never published; "The history of a malignant fever which prevailed in Sussex County, Del., in 1774," &c.

John McKinly, a native of Ireland, was a well-educated physician who settled and practiced his profession with success at Wilmington, Del. He was held in great esteem by the community; was the first governor of the State under the new constitution. He died August 31, 1796, aged 72.

Edward Miller was a native of Delaware, but in 1796 removed to the city of New York. He studied medicine with Dr. Charles Ridgely and attended lectures at the University of Pennsylvania; was a surgeon's mate in the Revolution nearly a year, in the large hospital at Baskinridge, N. J., and was surgeon for some time on a vessel employed as cruiser and bringing dispatches to France. In 1793, when yellow fever was epidemic in Philadelphia, he wrote to Dr. Rush, presenting the theory of the domestic origin. In 1796, with Dr. Elihu H. Smith and Dr. Mitchell, he projected the publication of the Medical Repository, the first medical journal in America. He was a member of nearly all the

learned societies of the day and was one of the ablest medical men in the country. He died of typhus pneumonia March 17, 1812, aged 72.

George Monro, a native of New Castle, Del., was a physician of note in Wilmington during the close of the last century. He died October 11, 1819, aged 59. Towards the termination of the war he was surgeon in one of the Virginia regiments.

James Sykes, a native of Dover, Kent County, Del., practiced medicine in the same place with success during life, dying October 18, 1822, aged 61. He studied medicine with Dr. Clayton, of Bohemia Manor. He was a very popular surgeon and certainly a successful lithotomist. In 1814 he removed to New York, but in a few years returned to his native town. He was president of the State Medical Society and for nearly fifteen years was a State-senator.

George Stevenson, a surgeon of the Revolution, practiced with great repute. He was a member of the Society of Cincinnati. He died in Wilmington, Del., May 15, 1829, aged 69.

James Jones was a surgeon in the revolutionary war. He studied and practiced his profession in Duck Creek Hundred, where he died April 29, 1830, aged 74.

John Miller, a native of Dover, Del., a surgeon in the revolutionary war, died February 28, 1777, aged 25 years.

The early medical history of Delaware is much merged into that of Maryland and Pennsylvania, as the visits of the physicians of the latter States often extended into the former.

Doubtless one of the most prominent medical men of the State was James Tilton, who was born in Kent County, June 1, 1745. Having received a preliminary classical education, he entered the medical school at Philadelphia, and in 1771 obtained the degree of M. D., being a member of the first graduating class of that institution and having received the bachelor's degree in 1768.

In 1776 he entered the Army as a surgeon, but was soon promoted to the hospital-department, in which he served till the close of the war. In 1785 he was made commissioner of loans and at the breaking-out of the war of 1812 was appointed physician and Surgeon-General of the Army. He was also a member of the Congress sitting at Philadelphia. He died near Wilmington, May 14, 1822. Seven years previous (when at the age of 70) he had his leg amputated on account of disease of the knee-joint.

Reuben Gilder and Henry Latimer, of this State, served as surgeons in the Continental Army and John B. Cutting as apothecary. The last-named died February 3, 1831, in the District of Columbia.

Joshua Clayton, a native of Delaware, died of yellow fever in 1799 at an advanced age. He was an intelligent physician and a most exemplary citizen. During the revolutionary war, when Peruvian bark was scarce, he was led to use a combination of the bark of the poplar (*Liriodendron*) and the dogwood (*Cornus florida*) as a substitute, and with

good results, he thought. He was president of the State for many years, and after the war, and the adoption of the Constitution, was chosen governor. He was also United States Senator.

GEORGIA SURGEONS IN THE REVOLUTION.

Jacob V. Egbert, James Houston, James B. Sharpe, Benjamin Tetard, and John G. Wright, physicians of Georgia, served as surgeons in the Continental Army.

SURGEONS NOT LOCATED.

John Applewhaite; John Wingate, who died in Kennebec County, Maine, July 25, 1819; Felix Texier; John Roberts, who died in Franklin County, Kentucky, April 21, 1821; Elisha Skinner, who died in Penobscot County, Maine, November, 1827; John Knight; Corbin Griffin, who was surgeon of the hospital at Yorktown, and Ezra Green served as surgeons to the American Army during the revolutionary war, but of what States they were citizens previous to entering the military service is not easy to ascertain.

SURGEONS AT BUNKER HILL.

The following-named physicians were attached to the American forces and rendered professional assistance to the patriots at the battle of Bunker Hill: Isaac Foster, John Hart, Walter Hastings, David Jones, David Townsend, Obadiah Williams, and Lieut. Col. James Bricket. The last-mentioned, although an officer of the line, gave surgical aid to the wounded in that memorable battle.¹

Able physicians were located throughout the colonies not specially mentioned. They possessed, however, no large centers of population or leading educational institutions around which to cluster and gain permanent professional recognition. Their works, when noticed, have gone to swell the reputation of the profession in general in America.

ENDEMICS AND EPIDEMICS.

The following list of diseases comprises the names of those that most frequently and severely afflicted the early settlers in America and which the colonial physician was called upon to treat. The mortality attending some of these diseases, when the epidemic proved to be wide-spread, was very great, and would be alarming at the present. That the diseases here enumerated, or most of them, have prevailed, either in an endemic or in an epidemic² form, at different times and places, cannot be doubted;

¹In Delaware, in 1726, a law entitled "An act to prevent infected vessels coming into this Government," and which was revised in 1797, was enacted, and is the only one that I can discover appertaining to either hygiene or medicine passed during the period of the colonial Government.—Revised Stat. Delaware, vol. 1, fol. 98.

²The term epidemic is, I apprehend, often applied unadvisedly and where the facts when examined do not justify its use. This is particularly true of the past, but the profession has adopted no definite rule for its application. What degree of prevalence

but I do not wish to be understood as asserting that I have included all, and none but those that are entitled to be mentioned.

I have omitted many localities where particular diseases were said to be prevailing as an epidemic, because it appeared to me the facts did not justify the application of the term. I must ask, therefore, that the lists be taken as nearly approximating the data collected.

It would occupy unnecessary space to give all the authorities in every instance from which the facts have been collated.¹ I have adopted the simplest possible form, by grouping the facts, by taking the name of the disease, and then giving the name of each locality and the year of its appearance with severity and re-appearance at that place. Although the list is incomplete, it will possess interest.²

of a disease should entitle it to be so denominated? New Orleans, a city that, perhaps, has been constrained to declare the existence of epidemics prevailing within its boundaries oftener than other within the United States, has acted upon the idea that where any particular disease caused more deaths than occurred from all other causes and diseases, then the unusual and chief-prevailing disease has been declared to be epidemic. It is needless to say that in the use of the term a larger latitude is given than statistical accuracy demands.

¹ The following are some of the works consulted: Webster on Epidemics, Smith on Typhus, Morris Scarlet Fever, Tennent's Epistle, Thacher's History of Medicine, Gallup on Epidemic Diseases of Vermont, Ramsey's State of Medicine in the Eighteenth Century, and numerous State- and local histories.

² *Small-pox*: New England, 1618, 1622, 1638, 1721, 1730, 1752; New York, 1721, 1731, 1752; Salem, Mass., 1633, 1711, 1792; New Jersey, 1730, 1752, 1764; Charleston, S. C., 1699, 1700, 1717, 1732, 1738, 1760; Philadelphia, 1730, 1731, 1732, 1736, 1756; Williamsburg, Va., 1748, 1765; Boston, 1631, 1633, 1639, 1645, 1647, 1649, 1656, 1677, 1678, 1689, 1701, 1702, 1721, 1730, 1752, 1764, 1776, 1792; Pennsylvania, 1661, 1663, 1732, 1757; Virginia, 1748, 1752, 1764; Lancaster, Pa., 1757; Maryland, 1730, 1757, 1764; Annapolis, Md., 1757.

Nervous fever: Wethersfield, Conn., 1793; Albany, N. Y., 1746.

Yellow fever: New London, Conn., 1798; Wilmington, Del., 1798; Boston, Mass., 1691, 1693, 1796, 1798; Holliston, Mass., 1741; Nantucket, Mass., 1763; New Design, Md., 1797; Portsmouth, N. H., 1798; Albany, N. Y., 1746; New York, N. Y., 1668, 1702, 1732, 1741, 1743, 1791, 1795, 1798, 1799; Chester, Pa., 1798; Philadelphia, Pa., 1699, 1741, 1762, 1793, 1797, 1798, 1799; Providence, R. I., 1795, 1797; Charleston, S. C., 1699, 1700, 1703, 1728, 1732, 1739, 1745, 1748, 1749, 1753, 1755, 1758, 1792, 1794, 1795, 1796, 1797, 1799, 1800; New Orleans, La., 1769, 1791, 1793, 1794, 1795, 1797, 1799, 1800; Mobile, Ala., 1705, 1766; Pensacola, Fla., 1764.

Plague, (probably yellow fever:): New Haven, 1794; Philadelphia, 1740, 1762, 1778, 1780, 1794, 1797, 1798; New York, 1702, 1743, 1745, 1794, 1795, 1796, 1798; Baltimore, 1783, 1794, 1797; Mill River, Conn., 1795; Nantucket, 1763; Martha's Vineyard, 1763; Virginia, 1660, 1695, 1737, 1740; Mohegan Indians, 1745, 1746; Marcus Hook, Wilmington, (Del.) New Castle, (Del.) Duck Creek, Bridgeton, (N. J.), Woodbury, (N. J.), 1798; Norfolk, Conn., 1797, 1798; Boston, 1693, 1698, 1795, 1798; Portsmouth, New London, 1798; Wilmington, N. C., 1796; Charleston, 1728, 1732, 1740, 1746, 1796, 1797; Newburyport, Mass., 1796; Providence, 1797; Connecticut, 1662, 1683.

Scarlatina: Connecticut, 1751, 1793, 1794; Vermont, 1787, 1793, 1796, 1797; Windsor, Bethel, Stockbridge, Barnard, Royalton, Woodstock, Randolph, 1795; Philadelphia, 1746, 1764, 1783, 1789, 1793, 1794; Kingston, Mass., 1735; Boston, 1702, 1735, 1795; Ulster, 1785; New England, 1787; New Haven, 1793, 1794; New York, 1792, 1793, 1794; Salem, Mass., 1783; Charlestown, 1784; North Fairfield, 1793; Massachusetts, 1793, 1796; Hart-

REASONS FOR STUDYING ABROAD.

If the supply of really competent teachers was limited under the conditions and wants of our new country, the student-class which could have been drawn together at any one of the colonial capitals was also small. The rivalries natural between the different communities prevented concert of action and a concentration of resources.

The lines of travel between the States were then undeveloped, and it was almost as easy for a medical student to cross the Atlantic and attend the University of Padua or Leyden as to have attended a school, if one had existed, in a remote province in America.

During the opening years of the eighteenth century the attractions of those continental seats of learning were unsurpassed and their authority in science absolute. To Leyden in particular, that Athens of the
ford, 1794; New Hampshire, Me., 1796; Bethlehem, Conn., 1792, 1793, 1794; Litchfield, 1793; New Jersey, Redbrook, 1789.

Dysentery : North America, 1752, 1758; Woodbury, Conn., 1749; Hartford, Conn., 1751; New Haven, Conn., 1751, 1773, 1795; Middletown, Conn., 1775; Dutchess County, N. Y., 1795; New York, 1709, 1739, 1776; Danbury, 1775; Mt. Independence, 1776; Georgetown, Md., 1793; Derby, 1794; Salem, Mass., 1773; Coventry, Conn., 1793; Stamford, Conn., 1745; Connecticut, 1749; Waterbury, Conn., 1749; Cornwall, Conn., 1749; Virginia, 1635; Hanover, Vt., 1798; Farmington, Vt., 1798; Bennington, Vt., 1782, 1788; Vermont, 1776; Rutland, 1796; Landgate, Vt., 1798; Bethlehem, Conn., 1798; Portland, 1797; Sheffield, 1795; Wilmington, 1795.

Typhus : Hartford, North Haven, East Haven, New Haven, (Conn.,) 1760; Bethlehem; Conn., 1760, 1797; Windsor, Royalton, Bethel, Randolph, Pomfret, Birmingham, Stockbridge, Arlington, (Vt.,) Norwich, (Conn.,) 1798; Woodstock, Vt., 1799; Royalton, 1798; Cornish, N. H., 1798; Dover, N. H., 1697; Dutchess County, N. Y., 1795; Byberry, Moreland, (Pa.,) 1793.

Malignant fever : New York, 1745, 1787; Fredericktown, Md., 1788; Portland, 1797; New York, 1668.

Angina : Kingston, N. H., 1733, 1734, 1735; Boston, 1735, 1769; Northampton, Mass., 1787; New England, 1737, 1742, 1787; Connecticut, 1751; Long Island, 1755; Massachusetts, 1736.

Measles : Massachusetts, 1713, 1739, 1769, 1773; Charleston, S. C., 1747, 1759, 1772, 1775; Philadelphia, 1771, 1773, 1788, 1796; Connecticut, 1740; New York, 1788, 1795; Vermont, 1788.

Sore throat : Long Island, N. Y., 1769; Vermont, 1773, 1783; Eastern States, 1786; 1787; Kingston, (N. H.,) Exeter, (N. H.,) Boston, Chester, 1735; America, 1773; Philadelphia, 1763.

Influenza : New York, 1789; Philadelphia, 1760, 1761, 1789; Bethlehem, Conn., 1760; Massachusetts, 1697, 1761, 1781, 1789; Vermont, 1789, 1790, 1798; Boston, 1734, 1737; Fairfield, 1697; Charlestown, 1778.

Catarrh : Massachusetts, 1747, 1756, 1772; Vermont, 1781, 1790; New York, 1789; Philadelphia, 1719, 1773, 1790, 1794; Hartford, 1739, 1790; Boston, 1789; New England, 1655, 1658; Albany, 1790.

Croup : Middletown, Conn., 1775; Bethlehem, Conn., 1792; Connecticut, 1659.

Pleurisy : New York, 1749; Shaftsbury, Vt., 1786; Waterbury, Conn., 1712; Hartford, Conn., 1719; Philadelphia, 1794.

Fever : Bethlehem, Conn., 1750; Cape Cod, Mass., 1772; Philadelphia, 1793; Charleston, S. C., 1739; Holliston, Conn., 1742; Boston, 1745; New York, 1619, 1732; America, 1638; Connecticut, 1647; Wood Creek, N. Y., 1709; Charleston, 1761.

Canker-rash : Vermont, 1787, 1796.

John Tennent, in a letter to Dr. Richard Mead, of London, in 1738, mentions that in

West, and to the eloquent Booerhaave and his able *confrères*, were turned the thoughts of those who aspired to enter the profession, and by travel to obtain more professional knowledge than was to be acquired at home.

After the death of Booerhaave, Edinburgh, with Cullen as its great light, became the favorite resort of American students. The standard of preparatory training then required was much higher than at present, especially in the languages, for most of the text-books were written in Latin and Greek, and all lectures were delivered in Latin prior to 1746, when Cullen, who dared to innovate the established custom, lectured in English.

Graduates were required to present, publish, and defend a thesis in one of the learned languages. Such high requirements virtually closed the doors of the profession, except to the well-educated.

When we consider that the Edinburgh School of Medicine, an institution with which Cullen united in 1756, organized about 1700 and not fully established until about 1725, was the first under the British government to achieve eminent success, it is not surprising that her distant colonies were backward in founding medical colleges.

The Wind-mill Street School of Anatomy was founded by the Hunters in 1770. Prior to this period dissection was seldom required or practiced by the students, they being merely present at the demonstrations of the professor in the lecture-room, where he often taught from models and drawings, and without a fresh subject before him.

FOUNDING OF MEDICAL SCHOOLS AT HOME.

From this cursory view of the surroundings of medical men at home and abroad, the establishment of two medical schools in America appears highly creditable to our people, who had an ardent craving for knowledge, as well as to the intelligence and enterprise of the professional men of that period.

MEDICAL COLLEGE OF PHILADELPHIA.

Drs. Shippen and Morgan, already mentioned, both natives of that city and graduates of Edinburgh, had, while studying their profession abroad, concerted a plan for establishing a regular medical school, at an early day, in their own country.

Virginia, "From the first of June to August continued periodical fevers and intermittents are epidemical, and then agues precede the latter till October, when pleurisies and peripneumonies begin to be common, and continue till May or June, tho' seldom epidemic."—(John Tennent's epistle to Dr. R. Mead, p. 12.)

Bilious fever : Philadelphia, 1778, 1780.

The diseases most prevalent in New England were the following: Alvine fluxes, Saint Anthony's fire, asthma, atrophy, catarrh, colic; inflammatory, slow, nervous, and mixed fevers; pulmonary consumption, quinzy, rheumatism.—(Winterbotham's America, vol. 2, p. 3.)

Their plan when presented at home was received with favor, and in 1765 the medical department of the College of Philadelphia (a well-established literary institution, founded in 1749) was organized under two professorships, which comprised all the branches, the one in the name of "theory and practice of phisic," held by Dr. Morgan; the other in "anatomy and surgery," filled by Dr. Shippen.¹

The Medical College of Philadelphia was fully organized in May, 1765, although it may be said to have had an earlier beginning, as a systematic course of lectures on anatomy had been delivered to respectable classes from the year 1762.

The College of New York was founded in 1767 and fully organized in 1768. Dr. Samuel Clossy, however, had commenced a private course of anatomical lectures in 1764.

While high honor is due to the New England colonies for their early, generous, persistent, and judicious efforts in the cause of general education and literature, they accomplished less for medical science prior to the Revolution, and, indeed, in the last century, than might have been expected.

The first course of lectures of Dr. Shippen, on anatomy, already alluded to, was given to twelve students, in a room in the rear of his own office, and continued every year to increased classes, from 1762 until 1765, when the college opened, after which he taught, in addition to anatomy, surgery and obstetrics. It was about this period that a mob attacked his anatomical rooms, on account of his leadership in teaching anatomy and persisting in the dissection of the human body for such purposes, in the face of the prejudices of the age.

His subjects at this time were supplied from the few criminals and suicides, which latter had been granted by public and governmental authority.

The "doctors' mob" in 1788 marked the last serious resistance of the populace to the teaching of practical anatomy in America, although

¹ It is difficult to ascertain the precise period of the formation and establishment of the great universities of Europe, or at least of the older ones among them. But about the beginning of the twelfth century a number of them acquired importance and influence. Then it was that the custom of conferring degrees and academic honors was established and became general. The degree of bachelor was the first conferred; then master; then doctor; and the same gradation is still retained. The first degree of doctor was, I believe, conferred by the University of Bologna, about A. D. 1130. Irnerius, the "Lucerna juris," who died at Bologna in 1150, is said to have drawn up the first formula for the degree "*Juris utriusque doctor*," which was conferred upon Bulgarus. The University of Paris adopted the degree in 1145. The first recipients of the degree of "*Sacrae theologiae doctor*" were Peter Lombard, who died in 1164, and Gilbert de la Potrée, the two leading divines of their day.

Sir Henry Spelman, a learned antiquary, born in 1561, thinks the title "doctor" was not used till after the publication of Lombard's Sentences, about 1140, and affirms that "such as explained that work to their scholars first received the appellation of doctors."

Others claim that Bede, surnamed "the venerable," who died in 735, aged 63, was the first doctor of Cambridge, and that John Beverly, a learned bishop, who founded

enactments long remained unrepealed, in the statutes of some of the States, which greatly embarrassed the colleges in procuring material for the dissecting-room, but they have been either repealed or become obsolete.

This desultory narration of the attempts at instruction in anatomy and surgery covers the fifteen years beginning with 1750 and brings us to the decade immediately preceding the Revolution. The times were then (1765) ripe for a higher, a better-organized, and a more efficient home professional education. Men eminently fitted for the undertaking were at hand and the era of systematic public teaching in medicine opened in Philadelphia, then the principal commercial city of the North American provinces.

A third chair was filled, in 1768, by the election of Dr. Adam Kuhn as professor of materia medica and botany. Dr. Thos. Bond, a native of a college at Oxford and died in 1721, was the first at that university; but Spelman will not allow that "doctor" was the name of any title or degree in England prior to the reign of King John, about 1207.

The title, from its earliest use, was held in great estimation by different faculties, as is evidenced by the doctors contending with knights for precedence; which disputes were in many instances terminated by advancing the doctors to the dignity of knighthood.

The degree of "doctor" was a certificate that the person receiving it was competent to teach the branch for which it was conferred. The faculties recognized, in which the degree was given, were theology, philosophy, law, medicine, and the arts, (or polite literature.) Philosophy and the arts could not in any country, and least of all in England, become professions with a numerous following. The individual who had pursued his studies so far as to receive the degree of doctor in them either went further, and devoted himself to theology, law, or medicine, or else became attached to the universities, and never became so familiar with the people as to fix upon his class the popular appellation of "doctor." The title was well known and frequent in the profession of law, but only of the civil or Roman law, prevalent in Southern Europe. The common law of England was never taught in the English universities until a quite recent date, not 150 years ago; and the degree of doctor of the common law never existed. The English were the only people of modern times who produced a system of law, original and entire in itself and wholly differing from the common civil law which obtains elsewhere throughout Christendom. Even in the earliest times, the English were particularly jealous to guard against any inroads on their system of common law by the Roman or civil lawyers, and hence their schools of jurisprudence were not established at any of the academic colleges, but at the Inns of Court, near Westminster Hall, where, in their peculiar way and in antagonism to the schools of civil law, they gave, instead of the degrees of bachelor and doctor, the rank of barrister and sergeant, titles now well known in England in the higher walks of the profession.

Hence the title of doctor could never have been popularly applied to the lawyers. To the faculties, therefore, of divinity and medicine must its common use necessarily have been confined. But the doctorate of the clergyman, though it yet exists and is in frequent use, was and is sunk in his character of priest or bishop, and other reverential appellations, derived from their spiritual functions, as father, friar, (brother,) &c., or indicative of their office in the church, as bishop, curate, abbot, prior, pastor, &c.; and the title of doctor remained in the almost exclusive possession of the medical fraternity, and conveyed the idea that they were appointed by authority to give directions for the management of the sick and the preparation and administration of medicines.

of Maryland, already mentioned, had been in 1768 elected professor of clinical medicine.

Dr. Benjamin Rush, in 1769, was elected professor of chemistry.

By these five gentlemen medical teaching was conducted until the city of Philadelphia was occupied by the British army, in 1777. In some of the sessions, the classes numbered above thirty students.

Three of the professors accepted places in the Continental Army and Navy—Shippen, Morgan, and Rush. The number of graduates, during the first decade of the Philadelphia school, was but twenty-eight, all of whom received the bachelor's degree. Four of those, however, again presented themselves in 1771, and, having published a thesis in Latin and having passed an examination in public in the same language, obtained the degree of doctor of medicine.

It can be readily understood that, when there was no standard of preparatory education demanded of a student before commencing the study, nor any obligation to give evidence of due knowledge and professional qualifications to allow them the privilege to practice, preliminary education would certainly become lowered in the profession.

Many went directly from their preceptor's office and commenced their professional career, without attending lectures or obtaining even a license from any department of the Government. The necessities of a new country and the limited pecuniary means of students pleaded in their favor with the community and induced them generally to commence the practice of their profession after attending one course of lectures or receiving the "bachelor's degree."

The cares of a home and of a practice already acquired in a rural and sparsely-settled country prevented many, every way worthy of the honor, from returning to the college to receive the degree of doctor of medicine. Two of the graduates of the class of 1768-'71—Jonathan Potts and James Tilton—became distinguished physicians and held important and responsible positions in the medical department of the revolutionary Army. The bachelors, in graduating, participated in the public exercises, which, for the most part, were in Latin.

Since 1812 the degree of doctor of medicine is the only one granted in any of our American medical colleges.

Dr. Morgan, in his address at the commencement of the college in 1765, said:

"Perhaps this medical institution, the first of its kind in America, though small in its beginning, may receive a constant accession of strength and annually exert new vigor.

"It may collect a number of young persons of more than ordinary abilities, and so improve their knowledge as to spread its reputation to different parts.

"By sending these abroad, duly qualified, or by exciting an emulation among men of parts and literature, it may give birth to other useful institutions of a similar nature or occasional rise by its example to numer-

ous societies of different kinds, calculated to spread the light of knowledge through the whole American continent, wherever inhabited."¹

A part of this prediction soon received its verification.

EARLY PHYSICIANS IN NEW HAMPSHIRE.

Nathaniel Rogers, a native of Portsmouth, N. H., studied medicine and practiced in his native place. He was a graduate of Harvard College and studied with Dr. Bailey, of Ipswich. His practice was very large until the time of his death, which took place in 1745, at the age of 45.

Nathaniel Sargent, a native of New England, practiced medicine in Portland, N. H. He studied medicine with Dr. Packer and commenced to practice in Hampton, but on the death of Dr. Pierce he removed to Portland, where he died, in June, 1762.

Dr. Ezra Carter, a native of the State, died at Concord, where he had practiced his profession, September 17, 1794, aged 48. He studied with Dr. Ordway, of Salisbury, Mass.

Dr. William Coggsell, of N. H., was a surgeon in the Revolution. He remained in charge of the hospital at West Point until 1785, when it was closed.

Petetiah Warren, a surgeon of the Revolution settled to practice at Berwick, Me. He was from New Hampshire, and served as surgeon's mate in the Second New Hampshire Regiment, in 1776. In 1785 he sailed from Salem, Mass., for the coast of Africa, but never returned.

Clement Jackson practiced medicine with distinction at Portsmouth, N. H., through a long life. He died in 1788, aged 82. His son, Hall Jackson, also studied medicine and rose to eminence in the profession. He died in 1797.

William Parker was a surgeon in the Revolution; after the war he settled at Exeter, N. H., where he acquired a leading business, which he retained to the time of his death, which occurred September 15, 1798, from an attack of yellow fever.

Josiah Bartlett was a good physician and an ardent patriot in the Revolution. Having completed his professional studies he commenced to practice in Kingston, N. H., at the age of 21. He enjoyed a large practice, was exceedingly popular as a citizen, was a member of the Colonial Congress, and was a signer of the Declaration of Independence. He was governor of the State, president of the State Medical Society, and justice of the supreme court. He was able and faithful in every position. He died of paralysis, May 19, 1795, aged 65.

Joshua Brackett, a native of New Hampshire, was a physician of excellent ability; resided and practiced in Portsmouth, N. H., where he died, July 17, 1802, aged 69. He was a graduate of Harvard College in 1752. His medical studies were prosecuted under Dr. Clement Jackson. He was an honorary member of the Massachusetts Medical So-

¹ Discourse upon the Institution of Middle Schools in America, p. 58.

ciety. The honorary degree of M. D. was conferred upon him by his *alma mater* in 1793. He succeeded Dr. Bartlett in the presidency of the New Hampshire Medical Society. He gave 143 volumes of valuable books to the State Medical Society to form a library. His wife subsequently gave a donation of \$1,500 towards the same purpose.

Ezra Green was a surgeon of the Revolution, who after the war settled and practiced his profession at Dover, N. H., with success until near the end of his life. He died in the year 1847, at the age of 101 years and 28 days. He was a graduate of Harvard in 1765. He was for a time surgeon on board the *Ranger*, commanded by Paul Jones.

Dr. Samuel Curtis, of Amherst, N. H., was a surgeon on board the frigate *Hancock*, commanded by Capt. John Manly. He also served on other vessels in the same capacity during the Revolution. He died March 27, 1822, aged 74.

MEDICAL COLLEGE OF NEW YORK.

In New York, in 1768, the second medical college in the New World was fully organized as a department of King's (now Columbia) College, which had been founded in 1754. Like the Philadelphia school, it came into being in consequence of the efforts of physicians who had already been engaged in private instruction, Dr. Clossy having commenced a course of lectures on anatomy in 1763.

Drs. Middleton and Clossy were elected to the chairs of theory of physic and anatomy; the other members of the faculty were Drs. Samuel Bard, professor of the practice of physic; James Smith, of chemistry and materia medica; John V. B. Tennant, of midwifery, and John Jones, of surgery.

The four professors last named were Americans and had completed their education in European universities. Seldom has a school opened with so numerous and competent a corps of teachers. Of the seven branches usually taught at the present day, this institution had six. Physiology, the seventh branch, was not then sufficiently matured to justify a separate chair, and clinical medicine was not included for the reason that there was at that time no general hospital in the city of New York.

The corner-stone of the New York Hospital was laid July 27, 1773, and the building was unfortunately destroyed by fire just as it reached completion, in 1775, and before it had been occupied.

The curriculum of study in these schools was modeled upon that of the University of Edinburgh, from which nearly all the professors had graduated. The standard of requirements governing the examination of candidates for degrees was high and about the same in each.

The medical department of Harvard University, Massachusetts, was organized and lectures began in 1782.

The organization of the medical department of Dartmouth College, N. H., was completed in 1797.

These four were the chief medical schools organized in America up to the close of the eighteenth century. At the present time there are hundreds of all grades.

RULES OF ADMISSION AND EXAMINATION.

It will suffice to indicate the most important rules adopted on this point. First, such students as have not taken a degree in arts must give evidence of a competent knowledge of Latin and of certain branches of natural philosophy. Secondly, three years after matriculation, an examination for the bachelor's degree will be allowed to students who have taken one complete course of lectures. Thirdly, one year after obtaining the primary degree the student will be admitted to examination for the doctorate, if he shall be 22 years of age, shall have attended two full courses of lectures, and have published and publicly defended a treatise upon some medical subject. Fourthly, the mode of examination shall follow that of the most celebrated universities of Europe.

DATE OF FIRST DEGREES.

The first bachelor's degree conferred in America was granted in Philadelphia in 1768 and in New York in 1769. The first degree of doctor in medicine was conferred in New York in 1770 and in Philadelphia in 1771. The first medical degree conferred by the University of Edinburgh was in 1705.

ANNUAL SESSIONS.

The regular course of lectures generally began in September and closed in May or June. Dr. Shippen's course in anatomy embraced sixty lectures. The practice of delivering introductory lectures was in vogue from the first, and two or more of them pronounced at the opening of these schools were printed and are still in existence.

Copies of the published thesis of the first graduates are also extant.¹ The cost to a student of taking a bachelor's degree was not far from \$60 of the money of the present day.

PROGRESS OF MEDICAL EDUCATION.

To those who have noted the conditions and events in the colonies, narrated in the preceding pages, affecting the medical profession, it will be evident that the means and facilities available to young men preparing to enter the profession, before the Revolution, were so meager that they can scarcely be conceived by either the practitioner or student of the present day. As a general fact, in early times the young man was apprenticed to his preceptor for from three to seven years, the student,

¹See Catalogue of Library of the Surgeon-General's Office.

too, in most cases, beginning professional studies at the early age of from 14 to 18. It will naturally be inferred from this that many of the students were less qualified by preparatory education for commencing professional studies than was desirable. Indeed, it was not an unusual thing that the student, in addition to his medical reading, was at the same time receiving instruction in the languages, either at an academy, from his medical preceptor, or some neighboring clergyman. This was particularly true in rural districts, in which the higher schools or academies were scarce. The usages of European countries were, as a matter of course, brought over by the early settlers and made the basis of social customs, professional regulations, and local laws. In the Old World, it had been the practice for centuries for the medical student to be apprenticed for a term of about seven years to his preceptor.¹ This custom, although gradually yielding, lingered longest in the rural districts and smaller towns, whence came most of our early settlers.

The system of apprenticeship in the profession of medicine was still in vogue in America up to the period of the independence of the colonies and in some of the States to a late period. Many young men of good preparatory education, with ample pecuniary means to pursue their professional studies, were indentured for terms of years. This indenture-ship was a sort of servitude on the part of the young man, and contracted that he should be taught the science and art of medicine, and that he should give all his time and energy to the study and to whatever other business-interests his preceptor might require of him. With great propriety this always included the compounding of prescriptions and the prepar-

¹ The system or practice of apprenticing youths for a term of years, usually seven, originated at a period when the genteel professions, trades, and most other pursuits were almost exclusively carried on by corporate institutions. The custom of conducting professions and business through guilds and corporations became so general in the fifteenth century as almost to paralyze individual energies. They were, in England, finally restricted in their powers during the reign of Elizabeth. The guilds, of a semi-military character, probably had their origin in the free cities of Italy, where the trades-people had to defend themselves against the rapacity of the lords. These associations adopted and fostered democratic and independent principles of government in their societies. In progress of time, in different countries, they became the strong arm for protecting the citizens' rights and liberties. Countries where the guilds of various kinds flourished most took the lead in reforms that have ameliorated the condition of the mass of the people. By the close of the twelfth century guilds were common throughout Europe, particularly in Italy, Germany, and Great Britain; and although they were, at one period in the progress of civilization, of great importance to the people, they in time became intolerable aristocracies and oppressive to individual industry and enterprise, so that their restriction became a necessity. The lawyer, as well as the physician, a century or two back, in receiving a young man as a student, had him indentured; and, although seven years was the usual time, the period was a matter to be determined by the contracting parties. The barrister frequently studied sixteen years, after which he might take the degree of sergeant—"servitudo ad legem." In our country, instances occurred of clergymen taking apprentices to teach them theology and prepare them regularly for the universities of particular denominations.

ation of medicines. Formerly medicines were furnished to physicians and drug-stores in their crude form, as imported. To pulverize bark and roots, to make and spread plasters, to make tinctures, ointments, extracts, and blue-mass, &c., was the arduous labor of days. The students were commonly intrusted with bleeding, cupping, pulling teeth, dressing minor wounds, attending to night-calls in the office, and occasionally visiting patients with their preceptor.

The sparseness of population in the rural districts, the limited pecuniary means of many students, and their inability to board at home or to find boarding-places in the vicinity of the doctor's office necessitated the student to become an inmate of his preceptor's family. Relations of this character naturally served to identify intimately the student's life with all that affected the reputation and success of his preceptor and which dignified all duties and labors.

Prof. Dunglison, in the *Medical Student*, pages 59, 60, in speaking of the student-life in the office of a preceptor in England, says: "He instructs him, moreover, to bleed, glyster, draw teeth, &c.; and not many years ago it was the practice in some of the country-places of England, and perhaps still is, to require that the medical pupil should attend to the horse, if his employer kept one, see that it was regularly groomed, fed, and watered, and bring it saddled to the door on all sudden emergencies! What an employment for the future member of a liberal and learned profession! and what a waste of time in a pupilage, thus unnecessarily protracted."

What is here given as a picture of the student's life in Great Britain may be taken as applicable to the profession at an early period in the colonies. Dr. John Bard, in 1732, at the age of between 14 and 15 years, according to the custom of the times, was bound apprentice for seven years to Mr. Kearsley, one of the leading surgeons of Philadelphia, but a man of unhappy temper. "He treated his pupils with great rigor and subjected them to the most menial employments, to which Dr. Bard has been heard to say he would never have submitted but from the apprehension of giving pain to his excellent mother, who was then a widow with seven children and a very moderate income, and from the encouragement he received from the kindness of her particular friend, Mrs. Kearsley, of whom he always spoke in terms of the warmest gratitude, affection, and respect." (*Thacher's Medical Biography*, p. 97.) Dr. Benjamin Rush, in 1760, after acquiring a classical education, was apprenticed at the age of 15 to Dr. John Redman for six years. He was in daily attendance upon the shop of his preceptor, and it was during this time that he wrote the only account we have of the yellow fever in Philadelphia of 1762. Dr. James Lloyd, of Boston, at the age of 17, in 1745 commenced his medical studies, which continued for nearly five years, under Dr. Clark, of Boston. Dr. Daniel Drake, in 1800, "commenced his pupilage with Dr. Goforth in his sixteenth year. During the next three years his chief occupation was the study of medicine, the run-

ning of errands, the compounding of drugs, and all such employments as befall a country doctor's boy, student, young man, or whatever else bluntness or courtesy might call him." (Mansfield's Life of Drake, p. 54.) It would be quite easy to add the names of other distinguished American physicians who were apprenticed to their medical preceptor.

From the constant struggle that was incumbent on all classes of society to provide the necessary means of life, high literary culture was exceptional or had to be in a measure overlooked, even by the medical profession. There were but a few towns up to the period of the Revolution where the population was great enough to bring together a sufficient number of physicians to enable them to form a society either for professional discussion and advancement or for social intercourse.

The aggregate population of the colonies in 1776 was perhaps not much in excess of 3,000,000. The first census taken by authority of Congress was in 1790, when the number of inhabitants was found to be 3,928,326. In 1800 the returns gave 5,319,762. It is estimated that there was about one physician for every 800 of the population in towns and one for about every ten or twelve hundred throughout the rural districts.¹

There were probably not 3,500 physicians all told in the United States when the colonies declared themselves independent of Great Britain.

¹Table of the towns of over 5,000 population in the different States in 1790 and 1800, made up from the United States census-reports.

Towns.	Population.		Towns.	Population.	
	1790.	1800.		1790.	1800.
Portsmouth, N. H.	18,038	5,339	*Ballstown, Albany County, N. Y.	7,333	.....
Boston, Mass.	5,317	24,937	*Frederickstown, Dutchess County, N. Y.	5,932	.....
*Gloucester, Essex County, Mass.	5,661	5,331	*Fishkill, Dutchess County, N. Y.	5,941	6,168
*Marblehead, Mass. ....	.....	5,211	*Rensselaerwicktown, Albany County, N. Y.	8,318	5,541
*Newburyport, Mass.	7,921	5,946	Schenectady City, Albany County, N. Y. ....	.....	5,389
*Salem, Mass.	6,380	9,457	*Stephentown, Albany County, N. Y.	6,795	.....
Providence, R. I.	6,716	7,614	*Stephentown, Rensselaer County, N. Y. ....	.....	5,948
*Newport, R. I. ....	.....	6,539	*Washington, Dutchess County, N. Y.	5,189	.....
*Hartford, Conn. ....	.....	5,347	*Watervliet, Albany County, N. Y.	7,419	.....
*Middleton, Conn. ....	.....	5,001	Philadelphia, Pa.	45,250	70,287
*New London, Conn. ....	.....	5,150	Baltimore, Md.	13,503	26,114
*Norwalk, Conn. ....	.....	5,196	Richmond, Va. ....	.....	5,737
*Stonington, Conn. ....	.....	5,537	*Charleston, S. C.	16,359	20,563
Albany, N. Y.	33,131	5,289	*Savannah, Ga. ....	.....	3,166
New York, N. Y. ....	.....	60,489	*Christiana, Del. ....	.....	6,328
*Canaan Town, Columbia County, N. Y.	6,692	.....		
*Connasacharrie, Montgomery County, N. Y.	6,156	.....		
*Cambridge, Washington County, N. Y. ....	.....	6,187			
*Clinton, Dutchess County, N. Y. ....	.....	5,208			

The United States census-returns do not afford the data for an exact statement of the populations of the towns of the different colonies. Some of the towns include villages and townships or even a larger civil division. This is offered only as an approximate list; a more careful study would probably add to it Lancaster, Pa.; and a few other places ought perhaps to be included. Places marked with an asterisk (*) are supposed to comprehend the inhabitants of the township as well as corporate borough.

It is further probable that there were not much, if any, over 350 who had received a medical degree.

If we make the general average of one physician for every 800 of the population, it would give us 4,970 physicians in 1790, and in 1800 the same rate of physicians to total population would give 6,649 physicians for the United States; or, if we adopt the ratio of physicians to total population furnished by the late census, which is one physician to every 618 persons, there would have been, in 1790, 6,324 physicians, and, in 1800, 8,608. I am satisfied, however, that even the first estimate is too high for the period of our history antedating the Revolution. There were but a few towns then with a population of over 5,000, and consequently the opportunity for professional intercourse, even if the medical practitioners were inclined, was not great. In the rural districts, the pioneer was constantly battling to subdue the forest and protect himself against the elements. He had but little time to indulge in literary pursuits or to enjoy such acquirements in others. There always has been, and always must be, a relation between the qualifications of the medical practitioner of a country and the degree of culture and the necessities for individual labor on the part of the mass of the people.

It is probable that at the time of the Revolution there were not living in all the colonies 400 physicians who had received medical degrees; and yet, as is stated elsewhere, there were presumed to be over 3,500 practitioners. The American colleges had up to 1776 in the aggregate issued but fifty-one degrees, including that of bachelor of medicine. At the close of the century, those who had received degrees from American institutions did not number 250, but probably five times this number had attended one course of lectures at the different colleges, and who were then in practice. The colonists at first, it would seem, rather preferred to patronize the medical man who was also minister, farmer, merchant, or mechanic in addition to being a physician. Nor is it strange that a population in a new country, compelled to be industrious, frugal, and primitive in their habits, should welcome those who most nearly adopted their own mode of life. It will be remembered that there were neither medical clubs, institutions, quizzes, nor clinics to aid the medical student; and the libraries of medical men, as a general fact, contained but few works, and those were text-books of the most general character. There was, perhaps, not a medical library in the country prior to the Revolution that would have numbered 1,000 volumes and the vast majority of physicians did not have 50. From these facts the advantages, or rather want of advantages, of the early medical student may be inferred. The great majority of practitioners of medicine throughout the colonies down to the Revolution were never enabled to attend lectures, visit hospital-clinics, or, as it was termed, walk the hospital, for such institutions did not exist in this country. Students having concluded the term for which they engaged to read with a physician, they commenced their career as practitioners. The practice, however, was quite common for the student to

study in the office of some physician enjoying a reputation for surgery or for the treatment of fevers, or specially noted for some branch of his profession, for a year or two, and then to go to the office of another who enjoyed a similar reputation for excellence in another branch; but the usage was general that the young physicians left the offices of their preceptors to commence practice. In but a few States were licenses or certificates required, and these were easily obtained. The doctor's office, too, at that period, had not the luxurious appointments of the present day. It was generally a one-story single room, joining or adjacent to the doctor's house; the exception was for it to have two rooms; these were kept in order by the students themselves. It was rarely plastered; was shelved around the walls to hold bottles and medicine and the few medical books the doctor's library contained. It was never carpeted and was too often cheerless in the extreme. It was neither inviting to the student nor to the patient, nor to their friends who had to visit it. The paraphernalia of saddle-bags, overcoats, buffalo-robcs, and the usual outfit of the country doctor were almost everywhere obtrusively apparent about the room.

As the cabin preceded the comfortable farm-dwelling and the school-house and academy preceded the college, just so the primitive medical men preceded the more cultured and accomplished physicians of a later period. It will always follow that the higher and more general the standard of education in a country, the higher will be the standard of professional acquirements demanded by the public.

We have stated elsewhere that up to the beginning of the revolutionary war but two medical colleges had been organized in the United States.¹

The war of the Revolution gave great impetus and energy to the whole population of the colonies. The experience gained by the medical men who served in the Army elevated their views, gave them confidence in the exercise of their professional duties, endeared them to the public, and made them almost oracles in the communities in which they resided. This spirit of gratitude also created friends for the profession in the various legislatures, led to the enactment of laws which were more

¹ For political reasons the charter of the College of Philadelphia was abrogated in 1779, and the University of Pennsylvania chartered and a faculty organized. In 1789 the powers and privileges were restored to the College of Philadelphia, but leaving the university with its endowments from confiscated estates and all the powers at first granted. The two schools continued their separate course until the close of the year 1791. Whole number of graduates, including the bachelor and doctor's degree, from College of Philadelphia, from 1765 to its union with the university, 38. Whole number of graduates from the organization of University of Pennsylvania to the close of the century, 131.* The first medical college organized in New York was under the patronage of King's College in 1768; the chairs all became vacant in 1776. Up to this period there had been 14 graduates receiving the bachelor's or doctor's degree.† In 1787 the name of the college was changed to that of Columbia College and measures taken to organize a new faculty, which was not completed until 1792. From 1792-'93 to 1800 there were

* History of the Medical Department of the University of Pennsylvania, p. 218.

† Medical Register of the City of New York, 1862, p. 167.

just and protecting in their character and popularized the more recent and thorough modes for the scientific study of medicine. Hitherto dissections of the human body were very offensive to the public sentiment, but the war greatly lessened this prejudice, and the last vestige of this opposition manifested itself in 1788 in New York, and from that time forward medical schools have not been interfered with in using in a proper way fitting subjects in the dissecting-room. From this period, also, may be dated the greatest liberality on the part of the law-makers for the encouragement of medical colleges, medical societies, and curative institutions. This of itself inspired the ambition of youths in every community to enter a profession that was so honored, and there to win distinction. During the period from the close of the Revolution to the beginning of the present century, there was a marked increase of medical students in the country, and no less than five additional colleges, or rather medical faculties, organized; but in 1800 we find only four of them in actual existence, welcoming within them the medical students of America. From the beginning of the present century, the number of our medical students who went to Europe to complete their education became fewer. The colleges, too, were increasing the number of distinct chairs or professorships and the facilities for the student were being increased. The number of medical works that were being published in the country was noticeably on the increase, many of them being printed at interior towns of the different States, where since 1800 scarcely any book had been published. It is true that these publications were chiefly, and often with comments, editions of French and English works. Few original ones, up to the close of the last century, were made by American authors; and up to the close of the century but one original medical journal was published in the country.

INTERRUPTION FROM WAR.

The promising career of these institutions was early interrupted by the stirring events which ushered in the Revolution.

in this school 225 matriculants and 15 M. D. graduates.* In 1787 Nicholas Romayne established a respectable private medical school and continued it as such until 1791 without issuing degrees, when he associated with him a few others. They first applied for recognition and powers to grant degrees from the University of New York. This not being granted, they accepted powers from Queen's (now Rutgers) College of New Jersey, in 1793.† I am not able to state what number graduated from this school; but, as the organization was not long continued, there were but very few. The medical faculty of Harvard University, up to the close of the century, granted but 9 medical diplomas.‡ Dartmouth Medical College, which organized its medical faculty in 1796, up to the close of the century had granted but 5 medical degrees.§ The whole number of medical degrees granted by all seven of these medical faculties, up to the close of the eighteenth century, amounted to only about 212.

* Inaugural Discourse, Rutgers College, by Hosack, p. 85.

† Manley's Address as President of the New York Medical Society, 1827.

‡ College Catalogue.

§ College Catalogue.

Political excitement and the preparations for war claimed the attention of the citizens. *Inter arma silent doctores*. Some of the professors continued to impart instruction for a time and none were indifferent to the struggle, while most of those who were natives of this country received important commissions either from the colonial or Federal Government.

Since the establishment of American independence, when we had less than 4,000,000 population and but two medical colleges, these institutions have so multiplied in the land, that now, with a population of perhaps 40,000,000, there is scarcely a State that has not one or more flourishing medical schools. In the aggregate there are now over one hundred medical teaching bodies in the United States. The classes attending these various colleges number about 7,000, with an annual list of graduates of over 2,000.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,

Washington, D. C., October 13, 1877.

SIR: The plan of preparation for the Centennial Exhibition undertaken by this Bureau embraced a special report on the progress of medical education during the century. J. M. Toner, M. D., of this city, had furnished a valuable contribution to the history of medical education prior to the Revolution, which was published by the Bureau in 1874. After consultation with him and others a request to prepare the medical portion of the educational history for the century was addressed to N. S. Davis, A. M., M. D., of Chicago, as one eminently fitted to perform such a task successfully and to the satisfaction of the medical profession. Dr. Davis cheerfully undertook the work, for which his previous labors, educational and historical, specially qualified him.

The report on public libraries was the first portion published of the historical series intended to bring the progress of education in the United States down to the Centennial year. Dr. Davis's work on medical education is the second subject ready for the printer.

There are many indications of the increase of public and professional interest in advancing the standard of medical education, and it is believed that Dr. Davis's monograph will be a valuable contribution to this end, while it will afford this Office the means of replying to many inquiries addressed to it on the subject.

I have the honor hereby to recommend its immediate publication.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Approved, and publication ordered.

C. SCHURZ,
Secretary.

P R E F A C E .

Soon after commencing the work of compiling the following history an invitation was received to deliver an address, on the progress of medical education in the United States during the past century, before the International Medical Congress, which had been called to assemble in Philadelphia in September, 1876. In performing that duty, the same facts and in some instances the same language were used as in the following pages. In 1850, the writer published a small volume, entitled "History of medical education and institutions in the United States, from the first settlement of the British colonies to the year 1850." Only one edition was printed, and that has been entirely out of the market for more than fifteen years. I have, therefore, copied freely from such parts of it as would aid me in preparing the present work, without using quotation marks, or always making marginal references.

N. S. DAVIS.

CHICAGO, ILL., *July*, 1877.

MEDICAL EDUCATION AND MEDICAL INSTITUTIONS.

INTRODUCTION.

The medical profession in this and every other civilized country is so closely connected with the social and sanitary condition of the people on the one hand, and with the status of education and general science on the other, that its progress in the past and its position in the present are deserving of the most careful attention. This is preëminently true concerning the profession in this country, whose institutions have all had their origin since the beginning of the seventeenth century and their development in the midst of an educated and free people.

The history of the medical profession and its institutions during the colonial period, extending from the first settlement of the country by Europeans to the Declaration of Independence in 1776, has been so fully developed in the work of Dr. James Thacher, entitled "American Medical Biography," published in two volumes, in 1828, in which he gave what he calls "A succinct history of medical science in the United States from the first settlement of the country;" in the paper entitled "History of American Medicine before the Revolution," by John B. Beck, M. D.;* in the first chapter of a volume entitled "History of Medical Education and Institutions in the United States," &c.,† and more recently in a monograph published under the direction of the Bureau of Education, written by J. M. Toner, M. D.,‡ that I need not include that period in my present work. From the date of the first English settlement in 1607, to the Declaration of Independence in 1776, thirteen separate colonies had been established, embracing the Atlantic coast from Massachusetts to Georgia, inclusive, and all acknowledging allegiance to the government of Great Britain. Distributed over this wide extent of territory there had accumulated about three million people, among whom there were between three thousand and thirty-five hundred engaged in the practice of medicine. Of these, it has been estimated that not more than four hundred had received the degree of M. D. from a medical college,§ and most of these had received their collegiate education and honors in Europe. Only two medical colleges had been organized in the colonies, viz, the Medical College of Philadelphia, now

* See Transactions of the Medical Society of the State of New York.

† See History of Medical Education, by N. S. Davis, M. D., Chicago, 1851.

‡ See Contributions to the Annals of Medical Progress and Medical Education in the United States, before and during the War of Independence, by J. M. Toner, M. D., 1874.

§ Ibid., page 106.

the medical department of the University of Pennsylvania, in 1765; and the medical department of King's (now Columbia) College, in New York, in 1768. But only fifty-one medical degrees had been conferred by both these institutions prior to the year 1776, when active operations were suspended by the progress of the war. In all the colonies there were not more than twelve or fifteen cities and towns having over five thousand inhabitants, and these were so widely separated from each other, with such limited means for communication, that the attendance on a medical college or on the meetings of medical societies was surrounded with delays and difficulties but little thought of at the present day. The same condition of the country often compelled those practising in the smaller and more remote settlements to combine other occupations with their practice. In the New England colonies the offices of physician and clergyman were often united in the same person, and in all the colonies it was common for the physician to occupy a part of his time and increase his income by engaging to some extent in agriculture. Notwithstanding all the obstacles presented by the sparseness of the population, want of roads, and means of communication, there was an ambition on the part of the physicians to attend at least one course of medical college instruction, and a large proportion had served a regular apprenticeship with some practitioner of note before entering upon the active duties of the profession. Only three medical societies are known to have been organized during the colonial period of our history. The most important of these was the State Medical Society of New Jersey, which was organized in July, 1766. It appears that a few months previous to this a society called the Philadelphia Medical Society was formed in that city, chiefly through the influence of Dr. John Morgan, who had returned from Europe in 1765. It did not probably survive the war for independence, and is not known to have left any permanent record of its doings. The Delaware State Medical Society was organized in 1776.

In nearly all the colonies laws had been enacted concerning topics of interest to the profession. Most of these laws were designed either to protect the people of the colonies from the introduction and spread of contagious diseases, from injury by ignorant and reckless midwives, from exorbitant charges by physicians, or for the establishment of hospitals for the sick and insane. In only two of the colonies were laws enacted to define the qualifications of physicians and surgeons, with provisions for enforcing an observance of the same. The general assembly of New York, in 1760, ordained that "no person whatsoever should practise as physician or surgeon in the city of New York before he shall have been examined in physic and surgery, and approved of and admitted by one of His Majesty's counsel, the judges of the supreme court, the King's attorney general, and the mayor of the city of New York, for the time being, or by any three or more of them, taking to their assistance for such examination such proper person or

persons as they in their discretion shall see fit." Such candidates as were approved, received certificates conferring the right to practise physic or surgery, or both, throughout the whole province, and a penalty of £5 was prescribed for all violations of this law.* A similar act was passed by the general assembly of New Jersey in 1772.† Although most of the colonies had provided temporary hospitals for seamen, immigrants, the victims of small pox and other epidemic diseases, the first permanent general hospital for the sick was established in Philadelphia in 1752. It was aided by a grant of £2,000 from the colonial assembly of Pennsylvania; a further grant of £3,000 was made by the provincial assembly in 1762. The building was so far completed in December, 1756, that patients were admitted.‡ Dr. Thomas Bond was appointed superintendent, with Drs. Lloyd Zachary, Thomas Cadwallader, Samuel Preston Moore, John Redman, and Phineas Bond as associates. Dr. Thomas Bond, from the opening of the institution, introduced his class of students for bedside instruction, and thereby became the first regular clinical lecturer in America. A lecture introductory to his clinical course, delivered November, 1766, informs the reader that a copy of it has been placed upon the minute-book of the hospital. The Pennsylvania Hospital Library was begun in 1763, and was for a century the most important collection in the country.

In 1767 the colonial government of New York was induced to grant a charter for a general hospital, and an organization was effected and the work commenced by the laying of the corner-stone in 1773. But the building, when nearly completed, was destroyed by fire in 1775, and owing to the outbreak of the revolutionary war it was not rebuilt until 1791.

From this very brief glance at the condition of medical matters in the colonies, it will be seen that at the commencement of our history as an independent nation, in 1776, there were three or four thousand practitioners supplying three million people, distributed over thirteen States, extending along the Atlantic coast from Massachusetts to Florida, and containing two medical colleges, two organized medical societies, and one permanent general hospital. In noting the progress of the profession during the century which has intervened since that date, we shall arrange the work under the following heads, namely, educational institutions, including colleges and hospitals, and social or society organizations.

I.—MEDICAL COLLEGES AND HOSPITALS.

The credit of delivering the first public lectures on anatomy to a class of medical students in this country, illustrating them by dissections of the

*See History of Medical Education and Institutions in the United States, by N. S. Davis, M. D., page 22.

† For interesting details concerning the more prominent members of the profession, laws, customs, &c., in the colonies, the reader is referred to the Annals of Medical Progress, by J. M. Toner, M. D., Washington, 1874.

‡ G. B. Wood's Centennial Address, 1851.

human body, has been awarded Dr. William Hunter, of Newport, R. I., who gave instruction to classes in anatomy from 1752 to 1755. He was a native of Scotland and a relative of the celebrated John and William Hunter, of London. It is quite certain, however, that Dr. Thomas Cadwallader commenced the practice of his profession in Philadelphia as early as 1745, and was engaged in giving instruction to students in anatomy between that period and 1751. But whether his teaching was accompanied by dissections of the human cadaver does not appear. Drs. John Bard and Peter Middleton also dissected the human body for purposes of medical instruction, in New York City, in 1750. Dr. William Shippen, jr., who had recently returned from a protracted period of study in the medical schools and hospitals of London and Edinburgh, commenced a course of anatomical lectures at his father's residence in Philadelphia, in 1762, which was attended by a class of twelve pupils. The lectures were illustrated by actual dissections, the fee for the course being 5 pistoles.* For seeing the subject prepared for the lectures, and learning the art of dissecting, injections, &c., 5 additional pistoles were charged. He also had the use of a series of anatomical plates and casts, donated by Dr. John Fothergill, of London, to the Pennsylvania Hospital.† Dr. Shippen continued his courses of anatomical lectures annually until the organization of the medical department of the Philadelphia College in 1765. During his last two years in Europe he was joined by Dr. John Morgau, who had been educated in Philadelphia and had served one or two years as surgeon in the provincial army, who resigned his position in the army and sailed for London in 1760. Both these gentlemen became favorite pupils of the Hunters in London and took their degrees in medicine at the University of Edinburgh; Dr. Shippen in 1761, and Dr. Morgau in 1763. It was while they were together in London that they appear to have formed a decided purpose to bring about on their return home the establishment of a permanent medical college in Philadelphia. This purpose was not only clearly shown by expressions in their correspondence with friends while in Europe, but was still more plainly indicated in Dr. Shippen's introduction to his first course of lectures, on anatomy in 1762. They not only took special pains to qualify themselves for success in teaching, but they evidently received encouragement from some of the more eminent members of the profession in London and Edinburgh. Thus Dr. John Fothergill, when he sent a valuable series of anatomical plates and casts as a gift to the Pennsylvania Hospital, wrote to James Pemberton, in April, 1762, as follows: "In the want of real subjects these will have their use, and I have recommended it to Dr. Shippen to give a course of anatomical lectures to such as may attend. He is very well qualified for the subject, and will soon be followed by an able assistant, Dr. Morgau, both of whom, I apprehend, will not only be useful to

*The Spanish pistole is at present worth about four dollars; it was formerly somewhat more valuable.

†See History of Medical Department of the University of Pennsylvania, by Joseph Carson, M. D., pages 42, 43.

the province in their employment, but if suitably countenanced by the legislature will be able to erect a *school of physic* amongst you that may draw students from various parts of America and the West Indies," &c.* It is known that the plans formed by Dr. Morgan in reference to the establishment of a medical college in America were also recommended by Drs. Hunter, Watson, and Cullen. Hon. Thomas Penn, of London, who was a liberal patron of the College of Philadelphia, wrote a letter to the board of trustees of that institution, dated London, February 15, 1765, not only recommending Dr. Morgan, but also advising the establishment of the proposed medical school as a department of that college.†

ESTABLISHMENT OF THE MEDICAL COLLEGE OF PHILADELPHIA.

The College of Philadelphia had been founded in 1749, and received a charter from the proprietaries of the colony, Thomas and Richard Penn, in 1753. Its management was entrusted, in 1765, to a board of trustees twenty-four in number, embracing several of the most eminent citizens, five of whom were physicians, namely, Thomas Bond, Phineas Bond, Thomas Cadwallader, William Shippen, sr., and John Redman. As might have been expected, the board of trustees thus composed gave ready attention to the proposition concerning the establishment of a medical school, and at a meeting held May 3, 1765, Dr. Morgan was unanimously elected "professor of the theory and practice of physic;" thus creating the first medical professorship in America.‡ At a special meeting of the same board of trustees, held September 23, 1765, Dr. William Shippen, jr., was unanimously elected professor of anatomy and surgery. This action of the board of trustees was immediately followed by an official announcement published in the *Pennsylvania Gazette* of September 26, 1765, as follows :

As the necessity of cultivating medical knowledge in America is allowed by all, it is with pleasure we inform the public that a course of lectures on two of the most important branches of that useful science, viz, anatomy and materia medica, will be delivered this winter in Philadelphia. We have great reason, therefore, to hope that gentlemen of the faculty will encourage the design by recommending it to their pupils, that pupils will themselves be glad of such an opportunity of improvement, and that the public will think it an object worthy of their attention and patronage.

In order to render these courses the more extensively useful, we intend to introduce into them as much of the theory and practice of physic, of pharmacy, chemistry, and surgery as can be conveniently admitted.

From all this, together with an attendance on the practice of the physicians and surgeons of the Pennsylvania Hospital, the students will be able to prosecute their studies with such advantage as will qualify them to practise hereafter with more satisfaction to themselves and benefit to the community.

The particular advertisements inserted below specify the time when these lectures

* History of Medical Department of Pennsylvania University, by Joseph Carson, M. D., p. 42.

† Ibid., p. 50.

‡ History of the College of Philadelphia and of the University of Pennsylvania, by Dr. George B. Wood, in vol. iii, *Memoirs of Historical Society of Pennsylvania*.

are to commence, and contain the various subjects to be treated of in each course, and the terms on which pupils are to be admitted.

WILLIAM SHIPPEN, JR., M. D.,

Professor of Anatomy and Surgery in the College of Philadelphia.

JOHN MORGAN, M. D., F. R. S., &c.,

Professor of Medicine in the College of Philadelphia.

Although only two professors were appointed, their lectures were made to include most of the branches then regarded as essential to qualify a student to practise the healing art; this preparation was greatly assisted by the clinical teaching of Dr. Thomas Bond in the Pennsylvania Hospital. The arrangement continued a little more than two years, during which time the instruction in the several branches of medicine became more systematic, and the trustees of the college, at a meeting held July 27, 1767, adopted definite rules in regard to the conferring of medical degrees, as follows:*

FOR A BACHELOR'S DEGREE IN PHYSIC.

1. It is required that such students as have not taken a degree in any college shall, before admission to a degree in physic, satisfy the trustees and professors of the college concerning their knowledge in the Latin tongue, and in such branches of mathematics and natural and experimental philosophy as shall be judged requisite to a medical education.

2. Each student shall attend at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of physic, and one course of clinical lectures, and shall attend the practice of the Pennsylvania Hospital for one year, and may then be admitted to a public examination for a bachelor's degree, provided that, on previous examination by the medical trustees and professors, and such other trustees and professors as choose to attend, such student shall be judged fit to undergo a public examination without attending any more courses in the medical school.

3. It is further required that each student, previous to the bachelor's degree, shall have served a sufficient apprenticeship to some reputable practitioner in physic, and be able to make it appear that he has a general knowledge in pharmacy.

FOR A DOCTOR'S DEGREE IN PHYSIC.

It is required for this degree that at least three years have intervened from the time of taking the bachelor's degree, and that the candidate be full twenty-four years of age, and that he shall write and defend a thesis publicly in the college, unless he should be beyond seas, or so remote on the continent of America as not to be able to attend without manifest inconvenience; in which case, on sending a written thesis, such as shall be approved of by the college, the candidate may receive the doctor's degree; but his thesis shall be printed and published at his own expense.

This scheme of a medical education is proposed to be on as extensive and liberal a plan as in the most respectable European seminaries; and the utmost provision is made for rendering a degree a real mark of honor, the reward only of distinguished learning and abilities.

In January, 1768, Dr. Adam Kuhn was elected professor of materia medica and botany; and the following year Dr. Benjamin Rush was appointed to the chair of chemistry.

* See History of Medical Department of University of Pennsylvania, by Joseph Carson, M. D., p. 60.

These appointments, together with the previous adoption of the foregoing regulations concerning qualifications for the degrees of bachelor and doctor of physic, may be considered as completing the organization of this important school of medicine.

The announcement of the college session of 1769-'70 promised full courses of instruction in all the then recognized branches of medical science, and a session of six months' duration. The faculty stood as follows:

John Morgan, M. D., professor of the theory and practice of medicine.

William Shippen, jr., M. D., professor of anatomy, surgery, and midwifery.

Adam Kuhn, M. D., professor of materia medica and botany.

Benjamin Rush, M. D., professor of chemistry.

Thomas Bond, M. D., professor of clinical medicine.

All these except the last named were young men who had recently taken their degrees at the University of Edinburgh. While abroad, they had taken special pains to qualify themselves for teaching in their respective departments, and it is quite evident that their alma mater was the model after which they were endeavoring to fashion the new medical college.

The first medical degree conferred in America was that of bachelor of medicine. This degree was conferred on ten young men by the Philadelphia College at the public commencement, June 21, 1768. At the commencement June 30th, 1769, the same degree was conferred on eight students. The degree of doctor of medicine was first conferred by this college at the commencement in June, 1771, on four students who had taken the bachelor's degree in 1763. The inaugural theses were then required to be written in the Latin language and published in accordance with the rule established in 1767.

The medical department of the Philadelphia College, as now fully organized and under the rules we have quoted, continued its regular annual course of instruction with a steadily increasing reputation until the city of Philadelphia was occupied by the British army in 1777. The principal exception in regard to regularity was the omission of Dr. Morgan's course during the winter of 1772-'73, on account of his absence in the West Indies, where he appears to have gone for the purpose of soliciting funds for the college. Owing to the disturbed state of society during the first years of the war for independence, the number of students attending the college, and especially the number applying for degrees, was less than during the first three or four years after the college was opened.

The session of 1776-'77 was broken up and the more valuable movable materials of the college were privately removed to places of safety by the provost and members of the faculty. Most of the medical professors filled important places in connection with the American Army. Drs. Morgan and Shippen successively acted as medical director general, and

Dr. Rush was medical director of the middle department, and was one of the signers of the Declaration of Independence, while Dr. Bond rendered important aid in the establishment and direction of military hospitals.

THE MEDICAL COLLEGE AND THE UNIVERSITY.

An attempt was made to resume the courses of medical instruction in the college in 1779, but owing to political differences and suspicions the charter was abrogated by an act of the State legislature dated November 27, 1779, the officers removed, and its property transferred to a new institution.*

This successor of the Philadelphia College, with a liberal charter and larger endowments, was called the University of the State of Pennsylvania.

Rev. John Ewing, D. D., was appointed to be provost, and an effort was immediately made to organize the medical department by offering those who had held professorships in the college the same positions in connection with the new university. Dr. William Shippen, jr., was the only one, however, who at once accepted the offer, and the trustees of the university, finding themselves unable to fill the other places satisfactorily, passed a resolution requesting the former medical professors of the college to examine such candidates for graduation as might apply to them for that purpose. This request appears to have been complied with, and at the public commencement held June 27, 1780, the degree of bachelor of medicine was conferred on William W. Smith and Ebenezer Crossby, and that of doctor of medicine on David Ramsay, who was in the service of the American Army, and at the time a prisoner in the hands of the British.

Although the abrogation of the charter of the College of Philadelphia deprived it of a legal existence, and the refusal of most of its former medical faculty to accept chairs in the university left the latter without an adequate number of teachers, yet regular annual courses of medical instruction continued to be given by Drs. Thomas Bond, William Shippen, jr., Benjamin Rush, and Adam Kuhn, and a few medical degrees were conferred at each annual commencement of the university.

The officers and friends of the College of Philadelphia, however, continued to regard the act abrogating its charter and confiscating its property as illegal and unjust; and in 1783 it was reorganized by a new election of trustees and faculty, and an effort was made to induce the legislature to repeal the former act.

In 1785 Dr. Benjamin Franklin, who had been one of the founders of the college, returned from his service as foreign minister, and was chosen president of the newly elected board of trustees. He lent the whole force of his influence in aid of his old colleagues and in favor of such legislation as would restore to the college its charter and property. Under such advocacy the legislature of the State was finally induced, in March, 1789

* See History of the University of Pennsylvania, by George B. Wood, M. D.

to repeal the act of abrogation and restore the college to all its rights and privileges, but leaving the university in existence with its endowment from confiscated estates the same as before. As soon as the act of restoration was passed the board of trustees of the college proceeded to again organize all its departments. Rev. Dr. Smith was reëlected provost, and all the medical professors were invited to resume their respective professorships, as held at the time of the abrogation of the charter nearly ten years previous. The invitation met with a cordial response; but the death of Dr. John Morgan, in October, 1789, and the resignation of Dr. Adam Kuhn in the same month, led to such changes that the medical faculty of the college, as fully formed in November of that year, contained the following names:

William Shippen, jr., M. D., professor of anatomy, surgery, and midwifery.

Benjamin Rush, M. D., professor of theory and practice of physic.

Caspar Wistar, M. D., professor of chemistry and of the institutes of physic.

Samuel P. Griffiths, M. D., professor of materia medica and pharmacy.

Benjamin Smith Barton, M. D., professor of natural history and botany.

In the meantime Dr. Shippen continued to hold the same chairs in the University of Pennsylvania; Dr. James Hutchinson, that of chemistry; and Dr. Adam Kuhn, that of theory and practice of medicine. Two institutions were thus brought into a fair and active competition in a field affording, at that time, a patronage too limited for one.

The trustees of the College of Philadelphia not only reinstated a full corps of medical professors, but they revised their former rules in regard to medical requirements. These rules, as adopted in 1767, provided for the conferring of the degree of bachelor as well as that of doctor of medicine. The student was permitted to apply for the first, after "a sufficient apprenticeship to some reputable practitioner in physic;" attendance on "at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of physic, one course of clinical lectures, and attendance on the practice of the Pennsylvania Hospital one year." It was expected by the founders of the college that those who took the bachelor's degree would return after three years of study and practice and take the higher degree of doctor. But experience proved this expectation fallacious, as very few of those who entered into practice after receiving the first degree ever returned for the second. For this and other reasons the bachelor's degree was abolished, and the revised regulations adopted by the trustees of the college, November 17, 1789, and published in the Pennsylvania Gazette, were as follows:

1. No person shall be received as a candidate for the degree of doctor of medicine until he has arrived at the age of twenty-one years, and has applied himself to the study of medicine in the college for at least two years. Those students candidates who reside in the city of Philadelphia, or within five miles thereof, must have been the pupils of some respectable practitioner for the space of three years, and those who may

come from the country, and from any greater distance than five miles, must have studied with reputable physicians there for at least two years.

2. Every candidate shall have regularly attended the lectures of the following professors, viz: of anatomy and surgery; of chemistry and the institutes of medicine; of materia medica and pharmacy; of the theory and practice of medicine; the botanical lectures of the professor of natural history and botany; and a course of lectures on natural and experimental philosophy.

3. Each candidate shall signify his intention of graduating to the dean of the medical faculty at least two months before the time of graduation, after which he shall be examined privately by the professors of the different branches of medicine. If remitted to his studies the professors shall hold themselves bound not to divulge the same; but if he is judged to be properly qualified, a medical question and a case shall then be proposed to him, the answer and treatment of which he shall submit to the medical professors. If these performances are approved, the candidate shall then be admitted to a public examination before the trustees, the provost, vice provost, professors, and students of the college; after which he shall offer to the inspection of each of the medical professors a thesis, written in the Latin or English language, (at his own option,) on a medical subject. This thesis, approved of, is to be printed at the expense of the candidate, and defended from such objections as may be made to it by the medical professors at a commencement to be held for the purpose of conferring degrees on the first Wednesday of June every year.

Bachelors in medicine who wish to be admitted to the degree of doctor in medicine shall publish and defend a thesis agreeably to the rules above mentioned.

The different medical lectures shall commence annually on the first Monday in November, the lectures in natural and experimental philosophy about the same time, and the lectures on botany on the first Monday in April.

BENJAMIN FRANKLIN,

President of Board of Trustees.

WILLIAM SMITH,

*Provost of the College and Secretary of Board of Trustees.**

The trustees of the University of Pennsylvania adopted very similar regulations regarding courses of lectures and time of study for the degree of doctor in medicine, but they continued also to confer the degree of bachelor, as before.

One hundred and four medical students were in attendance on the lectures during the college term of 1790-'91, and appear to have been nearly equally divided between the two schools.

The disadvantages arising from a division of the patronage between the two collegiate institutions were too apparent to be overlooked, and friends of both before long instituted measures for an amicable union. The efforts made resulted in the passage of an act by the legislature of the State, September 30, 1791, uniting the college and university on terms which had been previously agreed to by both the parties in interest. The name adopted for the united institution was the University of Pennsylvania. Dr. John Ewing was elected provost and professor of natural and experimental philosophy, and all the professors in the medical departments of the two previous institutions were elected professors in the new one.

The full medical faculty of the university, as thus constituted, was arranged as follows:

*History of University of Pennsylvania, by Joseph Carson, M. D., pp. 95, 96.

William Shippen, jr., M. D., professor of anatomy, surgery, and midwifery.

Caspar Wistar, M. D., adjunct.

Adam Kuhn, M. D., professor of the theory and practice of medicine.

Benjamin Rush, M. D., professor of institutes of medicine and clinical medicine.

James Hutchinson, M. D., professor of chemistry.

Samuel P. Griffitts, M. D., professor of materia medica and pharmacy.

Benjamin Smith Barton, M. D., professor of botany and natural history.

The university, as now reorganized, ceased to confer the degree of bachelor of medicine, and left it optional with the medical students whether they should attend the lectures on natural history and botany, but in all other respects adopted the "rules respecting a medical education and the conferring of degrees in medicine" which we have already given as adopted by the trustees of the College of Philadelphia in 1789.

Dr. Rush, in an introductory lecture to his course, commenced in November following the enactment of the legislature consolidating the two colleges under the name of the University of Pennsylvania, commented as follows: "I should do violence to my own feelings should I proceed to the subjects of the ensuing course of lectures without first congratulating you upon the union of the two medical schools of Philadelphia, under a charter founded upon the most liberal concessions by the gentlemen who projected it, and upon the purest principles of patriotism in the legislature of our State. By means of this event the ancient harmony of the different professors of medicine will be restored, and their united efforts will be devoted with accumulated force towards the advancement of our science."

We have thus sketched as briefly as is consistent with clearness the progress of medical instruction from its beginnings in Philadelphia to the complete establishment of the University of Pennsylvania by the formal election of the faculty as above named, in January, 1792; but more in detail than we deem it desirable to treat other colleges, for the reason that this one has served so largely as the model after which all our medical colleges have been formed, and because this institution continued to occupy a leading position in the work of medical education until the present time.

OTHER EARLY MEDICAL SCHOOLS.

While the cause of medical education was thus progressing in Philadelphia, the profession in New York was not idle. The zealous efforts of Drs. Bard, Middleton, and others, aided by a spirit of rivalry with Philadelphia, effected the organization of the Society of the New York Hospital, and procured for it a charter from the colonial government in 1767. The first hospital building, which had been nearly completed but

was not ready for occupancy, was destroyed by fire in 1772. This, with the early and long continued occupation of the city by the British army, prevented all renewal of the work until the close of the war for independence. Work was resumed after peace was restored and suitable buildings were ready for the reception of patients in 1791. The institution continued under the control of the Society of the New York Hospital and a board of governors, and remained until the last few years one of the most important public hospitals in this country. Its origin was largely due to the efforts of Drs. Samuel Bard and Peter Middleton, through whose personal labors were added liberal pecuniary contributions for the erection of the first building, from the provincial governor, Sir Henry Moore, the corporation of the city, the legislature of the province, and many private citizens. Except the valuable lot on which it stood, all this was lost by the fire that destroyed the building as it approached completion. The efforts of the same parties to organize a medical school in connection with King's College, which had been established in the city of New York several years previously, were, however, attended with better success. A full medical faculty was organized in 1768, composed of Samuel Clossy, M. D., professor of anatomy; John Jones, M. D., professor of surgery; Peter Middleton, M. D., professor of physiology and pathology; James Smith, M. D., professor of chemistry and materia medica; John V. B. Tennent, M. D., professor of midwifery; and Samuel Bard, M. D., professor of theory and practice of physic. The first courses of lectures were given in the autumn and winter of 1768-'69, at the close of which, in May, 1769, the degree of bachelor in medicine was conferred by the trustees of the college on Samuel Kissam and Robert Tucker; and at the close of the succeeding college term, in May, 1770, the degree of doctor in medicine was conferred upon one or both of the same parties. These are stated by Dr. J. B. Beck and several other writers to have been the first medical degrees conferred by colleges in America.* This is correct, however, only as it relates to the degree of doctor of medicine; for, as we have already stated, the College of Philadelphia conferred the degree of bachelor of medicine on ten students at the college commencement in June, 1768, but did not confer its first degree of doctor of medicine until June, 1771. We have been unable to procure a copy of the regulations adopted by the medical department of King's College, or the requisites for graduation, but from the fact of conferring both degrees, and other indications, it is evident that the conditions did not differ materially from those relating to the same subject in the medical department of the College of Philadelphia.

The prosperity of the institution, however, was not at first commensurate with the known respectability and learning of its professors; for N. Romaine, M. D., informs us that, in 1774, six years after its organization, only "about twenty-five persons attended the anatomical lectures, some

* See History of American Medicine before the Revolution, by J. B. Beck, M. D., in Transactions of New York State Medical Society, vol. 5, p. 141.

of whom were students from the West Indies." This want of patronage has been attributed to the conduct of the trustees or governors of the college, but with what justice we are entirely unable to determine. It is more likely, however, that the disturbed state of the public mind, caused by the controversies of the colonies with the mother country, and the near approach of actual war, had more to do with the retarding of its prosperity than any other causes; and as New York was one of the earliest localities actually occupied by the British in the military conflict, the operations of the medical school were entirely suspended, and the members of the faculty became separated, some to responsible duties in the medical department of the American Army, and before the close of the strife some were cut off by death. Soon after the close of the war and the evacuation of the city by the British army, attempts were made to revive the medical department of King's (the name of which had, in the mean time, been changed to that of Columbia) College. Through some mismanagement the attempt not only failed, but was attended by circumstances that gave rise to a strong popular outbreak, commonly called the "doctors' mob." This arose from a suspicion that some bodies had been stolen from the graveyard for dissection. The rabble broke into the dissecting room of the college, and finding several subjects partially anatomized they exhibited the fragments to the multitude without, which so increased the excitement that all law and order were trampled under foot for two or three days. Several medical gentlemen were grossly insulted, and a few of the students were, for a brief period, confined in prison for personal safety.

To counteract as far as possible the evil influences brought to bear upon the profession, to serve the poor, and to improve medical science, several of the more enlightened young members formed themselves into a society, and in 1787 they succeeded in inducing the magistrates of the city to establish an apothecary shop at the public expense, and freely gave their professional services to the sick poor; in other words, they procured the establishment of what would now be called a public free dispensary. Among the more prominent engaged in this enterprise were William Moore, M. D., Nicholas Romaine, M. D., Benjamin Kissam, M. D., Wright Post, M. D., and Valentine Seaman, M. D. They not only bestowed gratuitous attendance on the poor, but added therewith lectures on most of the branches of medicine, thus constituting this dispensary the first institution connected with practical instruction in medicine under the corporation of the city. So great was their success that in 1790 more than fifty students attended.

Encouraged by this success, an attempt was made to organize an independent school under the name of the College of Physicians and Surgeons. This not proving successful at the time, another effort was made to revive the medical department of Columbia College.* In the autumn of 1791 the private association, under the superintendence of Nicholas

* See *Annals of Medical Progress*, p. 108.

Romayne, introduced no fewer than sixty medical students into the college, and thereby prevailed on the legislature of the State to make a grant of \$30,000 to the trustees for the purpose of enabling them to enlarge their buildings, &c. In the following year the medical faculty was reorganized with Richard Bayley, M. D., Wright Post, M. D., Samuel Rogers, M. D., William Hammersly, M. D., Henry Nicoll, M. D., and Benjamin Kissam, M. D., as professors, and Samuel Bard, M. D., as dean of the faculty. Some of these appointments were so unsatisfactory to the students that many of them abandoned the college and erased their names from the register. Indeed, such were the internal jealousies and outward prejudices, that the institution, though it maintained an existence until 1810, never attained a degree of prosperity equal to the private association to which we have alluded.

Toward the close of the war for independence, the subject of medical instruction began to attract attention in the New England States. In 1782 John Warren, M. D., commenced courses of lectures on anatomy, which were continued several years, and were attended by many of the students in Harvard College. Some liberal donations to the college from wealthy and enlightened friends of medical instruction were made about this time, and in 1783 the college organized a regular faculty consisting of John Warren, M. D., professor of anatomy and surgery; Aaron Dexter, M. D., professor of chemistry and materia medica; and Benjamin Waterhouse, M. D., professor of theory and practice of medicine.* This organization was popular and attracted the attendance of a small class of medical students annually until 1810, when the medical department was moved from Cambridge to Boston, where it soon attained a higher degree of prosperity, and has since continued the leading medical school in the Eastern States.

The medical department of Dartmouth College, at Hanover, N. H., was organized in 1797, chiefly through the influence of Nathan Smith, M. D., who was appointed professor of medicine, and for ten or twelve years taught all the branches with signal ability. Only a small number of students attended during the first few years after its opening, the degree of bachelor of medicine having been conferred on from one to eight candidates annually, but only one receiving the higher degree of doctor during the whole period.

The very limited degree of prosperity enjoyed by the medical school of Columbia College, in New York, led many members of the profession in that city to use their influence in favor of the establishment of another and independent medical college. In accordance with their wishes, the regents of the University of the State of New York granted a charter for a new college in 1807, to be located in the city, and called the College of Physicians and Surgeons of New York. This school was placed

* Dr. Ezekiel Hersey, of Hingham, bequeathed £1,000 and his widow a like sum, for the support of a professor of anatomy and surgery. In 1786 Abner Hersey, M. D., of Barnstable, and John Cuming, M. D., of Concord, gave each £500 for the same purpose.—(Thacher's Medical Biography, p. 31.)

under the control of a board of trustees consisting of the whole Medical Society of the City and County of New York, and the degree of doctor of medicine was conferred by the regents of the university of the State on the recommendation of the trustees and faculty of the college. The first course of lectures was given in the winter of 1807-'8 to a class of fifty-three students.

In 1810 the medical department of Columbia College was finally discontinued, leaving the College of Physicians and Surgeons the only one in the State, with a class of students numbering eighty-two, and the following able faculty:

Samuel Bard, M. D., president.

David Hosack, M. D., vice president and professor of the theory and practice of physic and clinical medicine.

William James McNeven, M. D., professor of chemistry.

Samuel L. Mitchell, M. D., professor of materia medica and botany.

Valentine Mott, M. D., professor of surgery.

John W. Francis, M. D., professor of obstetrics and diseases of women and children.

Wright Post, M. D., professor of anatomy.

The rapid prosperity which the friends of the institution and the regents of the university anticipated was not realized. The very numerous board of trustees, being mostly medical practitioners in the immediate vicinity of the college, soon became distracted by opposing counsels and jealousies which, extending to the members of the faculty, caused much difficulty, and greatly retarded the prosperity of the college and the progress of medicine in that city.

The medical department of the University of Maryland, at Baltimore, was incorporated in 1807,* and was at once supplied with an able faculty, consisting of John B. Davidge, M. D., professor of principles and practice of surgery, and Nathaniel Potter, M. D., professor of the theory and practice of medicine, assisted by John Shaw, M. D., of Maryland, and James Cocke, M. D., of Virginia. This institution met with fair success, preserved its organization, and is among the leading colleges of the country.

RÉSUMÉ AND GENERAL REMARKS.

By the foregoing brief sketch it will be seen that during the first thirty years after the close of the war for independence, which included the first decade of the present century, seven medical colleges were organized and located as follows: two in Philadelphia, two in New York, one in Boston, one in Hanover, N. H., and one in Baltimore. The two in Philadelphia were speedily merged into one, and one of those in New York was discontinued in a few years. We find, therefore, only five medical schools in

* As early as 1804 John B. Davidge commenced a course of lectures on midwifery, which he extended so as to include anatomy and surgery, to a class of six students in the city of Baltimore.

existence in the United States in 1810, with an aggregate number of medical students in attendance of about 650, of whom about 100 received either the degree of bachelor or doctor of medicine. Two-thirds of the whole number were in the University of Pennsylvania. Only three public general hospitals had been established, namely, Pennsylvania Hospital, in Philadelphia; the New York Hospital, in New York City; and the Charity Hospital, in New Orleans.* The first proved a very important aid to the University of Pennsylvania in attracting medical students to Philadelphia by the clinical instruction which it afforded, as inaugurated by Dr. Thomas Bond, soon after it was opened for the reception of patients.

With a single exception, these medical schools were organized as departments of universities or colleges of literature and science previously established; and all but this one began with a small number of professors, making it necessary that one should teach two and sometimes three branches of medicine during each annual college term. For this reason more than any other the medical college terms were made to commence generally in October and continue until the following May or June.

All these schools adopted at first the policy of conferring the degree of bachelor of medicine on students who had studied medicine with some respectable practitioner not less than two years and attended all the medical instructions in the college one year, or rather one college term; and the degree of doctor of medicine after three years of study and two annual college terms. It must be remembered that during the colonial period of our history, and for thirty or forty years subsequent to the achievement of our national independence, it was the universal custom for young men who entered upon the study of medicine to become regularly apprenticed to some practitioner for a term of three or four years during which time the preceptor was entitled to the student's services in preparing and dispensing medicines, extracting teeth, bleeding, and other minor surgical operations, and, when more advanced in studies, in attending on the sick; as a return for this he was obliged to give the student detailed and thorough instruction in all the branches of medicine. Many of the more eminent practitioners frequently had several students in their offices at one time, constituting a small class, who were drilled as regularly in their studies as they would be in college. In some instances the term of apprenticeship was extended to six and seven years, and was made to commence at the early age of fifteen or sixteen years. All these customs were brought by the immigrants from the parent country, and their perpetuation here was rendered

* In 1784, Don Andros Almonoster commenced the erection of a public general hospital in the city of New Orleans on the site of the one blown down in the great storm of 1779. It was called the New Charity Hospital, and cost \$114,000. As Louisiana became one of the States of our Union, by purchase, in 1803, this hospital must be recognized with those of Philadelphia and New York.

more necessary by the sparseness of the population and the difficulty of access to medical schools.*

In the midst of such customs, and at a period in the world's history when railroads, steamboats, and other means of speedy transit were unknown, and even post coaches were rare, it was entirely reasonable that the first idea of a medical college should be to furnish the means for a rapid review of the several branches of medical science, aided by such experiments and appliances for illustration as could be commanded, and the whole concentrated into as small a part of the year as possible. The idea of the founders of medical schools, both in Great Britain and in this country, was to make them supplement, but not supersede, the work of the preceptor and the medical apprentice. The study of anatomy by dissections, the illustration of chemistry by experiments, the clinical observations of disease at the bedside, were capable of being carried on in the offices of preceptors only to a very limited extent. But by combining several preceptors, each eminently qualified in some one department, in a college faculty, with access to anatomical rooms, chemical laboratory, and hospital for the sick, all the branches of medicine then recognized could be very well reviewed, in the form of didactic instruction, in five or six months of the year. It was expressly to supply the wants here indicated, with the greatest economy of time and labor, that the medical department of the University of Edinburgh was founded in the beginning of the eighteenth century. Conferring its first degree of doctor in medicine in the year 1705, it rose rapidly to distinction among the schools of Europe, and furnished the model after which all the first medical schools in this country were organized, as it was the alma mater of nearly all their first professors. Assuming that the student would serve from two to four years of his apprenticeship to his preceptor before resorting to a medical school, the several professors very naturally arranged their courses of instruction to begin nearly at the same time, generally in September or October, and to be completed in time for the public commencement and conferring of degrees in the following May or June; and as the bachelor's degree was generally conferred after attendance on one full course of college instruction in the several branches taught, no gradation or consecutive order of studies could be incorporated into the college course. The addition of one or two years more of study, including a second course of college instruction, entitled the applicant to an examination for the degree of doctor of medicine. At the first organization of all the medical schools to which I have thus far alluded, provision was made for conferring the degrees of both bachelor and doctor of medicine. But, as already mentioned, the degree of bachelor was abandoned by the College of Philadelphia in 1789, and by the University of Pennsylvania in 1791, and by all the medical colleges in this country after 1813. The whole number of medical

* See Contributions to the Annals of Medical Progress, by J. M. Toner, M. D., page 103.

degrees conferred by the seven medical schools whose origin is here traced, prior to 1810, probably did not exceed six hundred.

Very many, however, served their regular apprenticeship with a preceptor, attended one course of college instruction, and entered upon practice without a college degree; and there were not a few who entered upon the responsible duties of practice with the simple certificate of their preceptor, without ever seeing the inside of a college.

We shall not fully appreciate the relations of the medical schools to the needs of the profession, in the early days of the Republic, unless we consider also the coincident condition of the different branches of medical science. To the active workers of the present generation, a medical college with only three or four professors, or with one professor attempting to teach anatomy, surgery, and midwifery, all in one college term of five or six months, would appear hardly less than absurd. If we remember, however, that down to the commencement of the present century the principal medical works in use were the writings of Sydenham, Boerhaave, and Cullen; the physiology of Haller; the anatomy of Cheselden and Munro; the surgery of Sharp, Pott, and Jones; the midwifery of Hunter and Smellie; and the materia medica of Lewis, we shall readily see that the field of medical study was limited in comparison to that which now opens before the student. At that time surgery had only begun to be recognized as a department distinct from anatomy. We learn from an introductory lecture by James Spence, F. R. C. S. E., professor in the University of Edinburgh, that "so late as 1777, when the college of surgeons petitioned the patrons to institute a separate professorship of surgery in the university, they were opposed by Munro, then professor of anatomy, as interfering with his subject; and he succeeded in getting his commission altered so as to include surgery, which was thus made a mere adjunct of the anatomical course, and continued to be so taught (if it could be said to be taught) until the institution of the chair of surgery in 1831." It was not until June 4, 1805, that surgery was separated from the chair of anatomy, by the appointment of Philip Syng Physick, M. D., as professor of surgery, on an equality with the other professorships, in the University of Pennsylvania. The department of midwifery was still later in gaining recognition as a distinct branch of medicine. At the request of Caspar Wistar, M. D., who had succeeded to the professorship of anatomy and midwifery in the university on the death of Dr. Shippen, in 1808, the trustees separated the chairs, and in 1810 appointed Thomas Chalkley James, M. D., the first professor of midwifery in that college. And yet it was not until three years later, October 11, 1813, that he was formally recognized as a full member of the faculty, and attendance on his lectures rendered obligatory upon the students who applied for a degree. In New York, however, midwifery was recognized as a distinct branch at a much earlier period than in any of the other cities in which medical schools had been organized; for in the first medical faculty appointed in connection with

King's College, in 1768, Dr. John V. B. Tennent was made professor of midwifery, apparently on an equal footing with all the other professors.

The foregoing facts are sufficient to show the limited field of medical science cultivated at the beginning of the present century, compared with the same field at the present time. If this is borne in mind, it will be seen that the 5 medical schools—embracing the medical departments of the University of Pennsylvania; of Harvard University, removed in 1810 to Boston; of Dartmouth College, at Hanover; of the University of Maryland, at Baltimore; and of the College of Physicians and Surgeons of New York—which were either reorganized or founded *de novo* during the first thirty years of our history as an independent nation, were established on as liberal a basis, and were as well adapted to the then existing wants of the profession and the people, as any that have been organized since. As a general rule they commenced with a small number of professors, but as the different departments of professional knowledge became better developed, and the work of instruction more thoroughly systematized, there was shown that tendency to make divisions of labor by the creation of new chairs which has continued to the present time.

In this respect the University of Pennsylvania, as the leading school, may be taken as a representative of all the rest. Commencing with only two professors, Drs. Morgan and Shippen, aided by the clinical instruction of Dr. Bond in the hospital, in 1765, the number was increased by the addition of chairs of chemistry and materia medica in 1768-'69, and on the merging of the College of Philadelphia with the University of Pennsylvania, in 1791-'92, the number of chairs was increased to six by the addition of professorships of institutes of medicine and of botany and natural history. A further addition took place by the creation of an independent chair of surgery in 1805, and one of midwifery in 1810.

MEDICAL SCHOOLS ESTABLISHED OR ORGANIZED SINCE 1810.

During the year 1810, a medical department was established in connection with Yale College, in New Haven, but the first course of lectures was not commenced until three years later. It was organized on the same plan as the schools connected with Harvard and Dartmouth. The first class of medical students for the college term of 1813-'14 numbered 37, of whom three received the degree of doctor of medicine at the commencement in 1814. The first faculty in this school was headed by Dr. Nathan Smith, who had already gained a high reputation as the professor of medicine in the medical department of Dartmouth College. He was appointed professor of the theory and practice of physic, surgery, and obstetrics, with Dr. Eli Ives professor of materia medica and botany, and lecturer on diseases of women and children, and Dr. Benjamin Silliman, professor of chemistry, pharmacy, mineralogy, and geology, as colleagues. To these were soon after added Dr. Jonathan

Knight, professor of anatomy and physiology, and lecturer on obstetrics and Æneas Munson, M. D., professor of institutes of medicine. With this able faculty the school rapidly acquired reputation and a fair share of professional patronage. As proof of this we find the number of medical students attending the college term of 1822-'23 to have been 9 of whom 28 received the degree of doctor of medicine at the close of the term.

In 1812 the regents of the University of New York incorporated a second medical college under the name of the College of Physicians and Surgeons of the Western District of the State of New York. It was located at Fairfield, Herkimer County, a small village then on the western borders of civilization. The legislature of the State appropriated \$15,000 to aid in the erection of suitable buildings, and the first course of instruction was given in 1813-'14 to a class of 33 students. The first professors appointed were Lyman Spalding, M. D., who had been a pupil of and assistant to Nathan Smith, M. D., of Dartmouth College, West Willoughby, M. D., James Hadley, M. D., and John Stearns, M. D. The first was appointed president of the faculty and professor of anatomy and surgery and lecturer on institutes of medicine; the second, professor of obstetrics and diseases of women and children; the third, professor of chemistry and materia medica; and the fourth, professor of theory and practice of physic. Dr. Spalding soon after removed to the city of New York, and, finding it inconvenient to divide his time between the two places, resigned, and was succeeded in the presidency and the chair of surgery by Joseph White, M. D., of Cherry Valley, while the chair of anatomy and physiology was given to James McNaughton, M. D., and that of the theory and practice of medicine and medical jurisprudence was assigned to T. Romeyn Beck, M. D., the two latter of Albany. On the death of Dr. White, in 1832, his chair was filled for a short time by one of his sons, and subsequently by John Delamater, M. D. At a still later period Dr. Willoughby, having reached a ripe age and an enviable reputation, resigned, and Reuben D. Mussey, M. D., was elected a member of the faculty in 1836. Under the influence and labors of these eminent men the school attained a good reputation, and was attended by classes numbering from 114 to 217, until 1840, when the whole faculty resigned on account of the opening of medical colleges in Albany and Geneva under charters granted by the State legislature, by which the patronage would be so divided as to give neither of the schools a reasonable support. From that date the College of Physicians and Surgeons of the Western District ceased to exist. During the twenty-seven years of its history it afforded instruction to 3,123 students, and graduated 589.

In 1818 Theodore Woodward, M. D., of Castleton, Vt., aided by Sela Gridley, M. D., succeeded in organizing a medical college in that town under the name of the Vermont Academy of Medicine. It received

charter from the legislature of that State, in 1835, and the faculty, when organized, consisted of—

William Tully, M. D., president and professor of the theory and practice of physic and medical jurisprudence.

Theodore Woodward, M. D., professor of the principles and practice of surgery, obstetrics, and diseases of women and children.

Alden March, M. D., professor of anatomy and physiology.

Jonathan A. Allen, M. D., professor of materia medica and pharmacy.

Lewis C. Beck, M. D., professor of chemistry and natural history.

Amos Eaton, esq., professor of natural philosophy.

The first course of lectures was given in 1818 to 24 students. The degree of doctor of medicine was conferred by the Middlebury College, on the recommendation of the medical faculty, until 1827, after which it was conferred directly by the faculty under its amended charter. In 1835 the faculty of this school commenced giving two separate courses of instruction each year, one commencing in the autumn and one in the spring. The school enjoyed a moderate degree of prosperity until 1837, when its courses of instruction were suspended for a few years.* At a subsequent period the faculty was reorganized and regular instruction was resumed, and continued until 1854; it graduated in all 350 students.†

In 1817 a medical school was fully organized as a department of the Transylvania University, Lexington, Ky., chiefly through the influence of B. W. Dudley, W. H. Richardson, and James Blythe. Many attempts had been made to fill the various chairs of medicine in this institution, from the appointment of Samuel Brown, M. D., in 1799, to the professorship of anatomy, surgery, and chemistry. In 1801, Frederick Ridgley, M. D., was elected professor of medicine. In 1805, James Fishback, M. D., was appointed to the chair of theory and practice. Walter Warfield, M. D., was made professor of midwifery and surgery in 1809. The faculty was recast and another effort was made to open the medical department in 1809; still another one, with new encouragement in 1815 but without success until 1817-18, when the faculty was organized by the appointment of Benjamin W. Dudley, M. D., professor of anatomy and surgery; Daniel Drake, M. D., professor of materia medica; William H. Richardson, M. D., professor of obstetrics and diseases of women and children; James Blythe, M. D., professor of chemistry; and Samuel Brown, M. D., professor of theory and practice of medicine. Twenty students attended the first course of lectures, only one of whom received the degree of doctor of medicine at the commencement. At the close of this term Dr.

* See Statistics of Medical Colleges, in Transactions of Medical Society of the State of New York, by T. R. Beck, M. D., 1840.

† This college had throughout its existence a most excellent faculty, and proved to be a great feeder of the medical institutions of Philadelphia and New York. The class during the last year numbered 91 matriculates.

Drake resigned and returned to Cincinnati, but again filled the same chair in 1823, and on the resignation of Dr. Brown in 1825 he was transferred to the chair of theory and practice of medicine; C. W. Short, M. D. was elected professor of materia medica and medical botany; and Charles Caldwell, M. D., to the chair of institutes of medicine and clinical medicine. As thus organized the faculty imparted to the school a high reputation, and attracted to its halls large classes; that for the college term of 1825-'26 numbering 281, 65 of whom graduated at the close of the term. Although many changes took place in the faculty, the prosperity of the school was maintained for twenty-five years, after which it rapidly declined and at length ceased to exist.*

When Dr. Daniel Drake left the Transylvania University, in the spring of 1818, he immediately commenced his efforts to organize a medical college in Cincinnati. An act passed the State legislature in January, 1819, incorporating the Medical College of Ohio. He succeeded in organizing a faculty, with himself in the chair of practical medicine, and a course of instruction was given to a small class of students during the autumn and winter of 1819-'20. Sharp differences soon sprang up between Dr. Drake and his colleagues, in consequence of which he was compelled to leave the school. As subsequently organized, the faculty consisted of Jedediah Cobb, M. D., professor of institutes and practice of medicine; Jesse Smith, M. D., professor of anatomy and surgery; John Moorhead, M. D., professor of materia medica and medical obstetrics; and Elijah Slack, M. D., professor of chemistry and pharmacy. The school thus founded acquired reputation slowly but permanently, though in the midst of much professional rivalry and opposition, and has maintained its position to the present day. Among the more prominent medical teachers who have at different times been connected with its faculty, in addition to those already mentioned as its founders, may be named John Eberle, M. D., Thomas D. Mitchell, M. D., John P. Harrison, M. D., L. C. Rives, M. D., R. D. Mussey, M. D., and George C. Blackman, M. D.

In 1820 the Medical School of Maine was organized as a department of Bowdoin College, at Brunswick, with three professorships, which were filled as follows: Nathan Smith, M. D., professor of theory and practice of physic and surgery; John D. Wells, M. D., professor of anatomy and physiology; and Parker Cleaveland, M. D., professor of chemistry and materia medica. The first course of lectures was given in 1821 to a class of twenty-one students, two of whom received the degree of M. D. Like the medical departments of Dartmouth and Yale, that of Bowdoin has maintained a stable and honorable progress until the present time, with classes varying from fifty to one hundred annually.

In 1821 a medical school was organized in connection with Brown University, at Providence, R. I., but was soon after discontinued.

* In 1850 the Transylvania Medical School intermitted its winter sessions in Lexington, to establish the Kentucky School of Medicine in Louisville, the Transylvania school being conducted as a summer school until 1859.

The medical school of the University of Vermont was organized at Burlington in 1822. In 1827-'28 the faculty consisted of Henry S. Waterhouse, M. D., professor of surgery and obstetrics; William Sweetser, M. D., professor of the theory and practice of physic and of materia medica; George W. Benedict, A. M., professor of mathematics, natural philosophy, and chemistry; and John Bell, M. D., professor of anatomy and physiology. The school did not attract sufficient patronage to afford a fair support, and was discontinued after a few years. It was subsequently reorganized with a full faculty, and has continued to give instruction to small classes annually until the present time.

In 1823 a medical school was organized at Pittsfield, Mass., under the charter of Williams College, called the Berkshire Medical Institution. The establishment of this school was due chiefly to the influence of H. H. Childs, M. D., who had been an active and influential practitioner in that place for twenty years. On the first organization of the school he was appointed professor of the theory and practice of physic, and Chester Dewey, A. M., professor of chemistry, botany, mineralogy, and natural philosophy; and, in 1826-'27, their colleagues were John P. Batchelder, M. D., professor of surgery and physiology; John D. Wells, M. D., professor of anatomy and physiology; John Delamater, M. D., professor of pharmacy, materia medica, and obstetrics; and Stephen W. Williams, M. D., professor of medical jurisprudence. The first class of medical students in 1823 numbered 84, seven of whom graduated at the close of the college term. In 1825 the number in the class had increased to 112, and the graduates to 21. It thus early attained a good degree of prosperity, which was pretty steadily maintained for forty years, during nearly all of which time its founder, Prof. Henry H. Childs, continued to occupy the chair of practice. Whenever vacancies occurred in other chairs they were generally filled with men of ability, until 1867, when the college was closed. The building was subsequently purchased by the town authorities and occupied by a high and grammar school until April, 1876, when it was destroyed by fire.

In 1824 the Medical College of South Carolina was organized at Charleston. During the colonial period of our history South Carolina was peculiarly favored with physicians of a high order of attainment; and even after the close of the war for independence a larger proportion of her physicians were regular graduates of European colleges than in any other State. The names of John Lining, Lionel Chalmers, David Ramsay, Alexander Garden, James Moultrie, Alexander Baron, and Samuel Wilson will always make the early history of medicine in that State illustrious.

The faculty of the new college, when fully organized, consisted of the following:

James Ramsay, M. D., professor of surgery.

John Edwards Holbrook, M. D., professor of anatomy.

S. Henry Dickson, M. D., professor of the institutes and practice of physic.

Thomas G. Prioleau, M. D., professor of obstetrics and diseases of women and children.

Henry Rutledge Frost, M. D., professor of materia medica.

Edmund Ravenel, M. D., professor of chemistry.

Stephen Elliot, LL. D., professor of botany and natural history.

The Medical Society of the State of South Carolina had been organized under an act of the State legislature in 1817 with two boards of examiners, one in Charleston and the other in Columbia. The college was also placed under the control of the State society, much in the same way the College of Physicians and Surgeons of New York was under the control of the medical society of the county. The first course of instruction was given in the autumn and winter of 1824-'25 to a class of 50 students. The reputation and patronage of the college increased rapidly, the class of 1830-'31 numbering 131, 59 of whom graduated at the close of the term. In 1829 an additional chair, that of pathological and surgical anatomy, was created and filled by John Wagner, M. D. On the death of Dr. Ramsay, in 1832, Dr. Wagner was transferred to the chair of surgery, which he filled with credit until his death in 1841. But soon after the organization of the college, differences began to develop between the faculty and the State Medical Society as the governing body. These increased until, in 1832, the whole faculty resigned, and their places were filled by other persons. The old faculty immediately obtained an independent charter from the State legislature, and in the autumn of 1833 commenced a new college, called the Medical College of the State of South Carolina. The first class of students numbered 103, leaving a much smaller number in attendance in the older college. The latter after a few years was discontinued, while the former, under a charter independent of the State Medical Society continued to be one of the most prosperous in the country and stood high when its work was interrupted by the war of the rebellion in 1861. Soon after the close of the war the organization of the Medical College was revived, but chiefly with new men in the faculty. Several of those who had contributed so much to the high reputation of the school in the earlier part of its history were dead, and others had been pushed to other fields by the fortunes of war. The new faculty in 1874-'75 was composed as follows:

R. A. Kinloch, M. D., professor of the principles and practice of surgery and clinical surgery.

J. P. Chazal, M. D., professor of pathology and practice of medicine.

Middleton Michel, M. D., professor of physiology.

C. U. Shepard, jr., M. D., professor of chemistry.

F. L. Parker, M. D., professor of anatomy.

J. Ford Prioleau, M. D., professor of obstetrics and gynecology.

F. Peyre Porcher, M. D., professor of materia medica, therapeutics, and of clinical medicine.

Manning Simons, M. D., demonstrator of anatomy.

The medical department of Columbian College, in the District of Columbia, was organized in 1825, largely through the influence of Thomas Sewall, M. D., and Frederick May, M. D. This college was chartered by Congress in 1821, and some appointments to the medical faculty were made the same year. Six professorships were established and filled as follows:

Thomas Sewall, M. D., professor of anatomy and physiology.

Thomas Henderson, M. D., professor of the theory and practice of medicine.

James M. Stoughton, M. D., professor of surgery.

Frederick May, M. D., professor of obstetrics.

N. W. Worthington, M. D., professor of materia medica.

Edward Cutbush, M. D., professor of chemistry.

The annual courses of instruction were given regularly for nine years to classes of medical students varying in number from 30 to 50, the whole number of graduates during that period being 81. The operations of the school were suspended from 1834 to 1838, but were resumed in the autumn of the latter year under the name of the National Medical College, yet still retaining the relation of medical department of what had now become Columbian University. Under this name and organization it has continued its annual courses of instruction, except for two years during the war, to classes varying from 28 to 55 in number until the present time.

From the reorganization of the University of Pennsylvania, after the close of the war for independence, to 1825, it was the only medical school in Philadelphia. Its unusual prosperity excited the envy as well as the admiration of many even of its own alumni, who became ambitious to excel as teachers in medicine.* Prominent among these were George McClellan and John Eberle, both of whom began to give private courses of medical instruction in that city between the years 1822 and 1825, and soon boldly advocated the establishment of another medical college. In the winter of 1825 a charter or law was passed by the legislature, under which the new medical school was organized in connection with Jefferson College, a flourishing literary institution at Cannonsburg, and hence the new medical school took the name of Jefferson Medical College. As nearly as we can ascertain, the first faculty consisted of the following members:

John Eberle, M. D., professor of the theory and practice of clinical medicine.

George McClellan, M. D., professor of surgery.

* The first effort to establish a second college in Philadelphia was in 1816. In the winter of 1818-'19, W. P. C. Barton, M. D., fitted up a lecture room attached to the rear of his residence, where he delivered lectures on materia medica and botany. This same year he petitioned the legislature of Pennsylvania for a charter for a medical school, but such influences were brought to bear that the movement was defeated. Measures were ripening, however, and others became interested in the cause, for a more vigorous and persistent effort.

Nathan R. Smith, M. D., professor of anatomy and physiology.

F. S. Beattie, M. D., professor of the institutes of medicine and midwifery.

B. Rush Rhees, M. D., professor of materia medica.

Jacob Green, A. M., professor of chemistry.

The first course of college instruction was commenced in the autumn 1825 to a class of 110 students, 20 of whom received the degree of doctor of medicine at the close of the term. The work of establishing the new college not only encountered the active opposition of the faculty and more immediate friends of the University of Pennsylvania, but was also unpopular with a large majority of the profession in Philadelphia. Owing to these circumstances, and the warm controversies to which they gave rise, the classes of students did not increase, but rather the reverse during the first five years. With the hope of increasing the reputation of the school, Dr. Daniel Drake, of Cincinnati, was engaged to give the course on practical medicine during the college term of 1830-'31. This expedient not only failed in its object, but resulted in the resignation of both Eberle and Drake and their return to the West during the succeeding year. Their places were immediately filled, and two years later the prosperity of the college began to increase rapidly, the class in attendance during the session of 1835-'36 numbering 364. Notwithstanding this, objections to its founder, Dr. McClellan, became so strong that in 1838 the board of trustees felt constrained to declare all the professorships vacant, and in refilling them omitted his name from the list. Subsequently the reputation of the school became largely identified with the names of Thomas Muter, J. K. Mitchell, C. D. Meigs, R. J. Dunglison, and H. Dixon, and it has kept to the present time in the front rank of American medical colleges.

The medical department of the University of Virginia, at Charlottesville, was chartered by the State in the year 1819, and organized in the year 1825. The organization of this school differed in some important respects from that of all the other medical colleges in the country. Instead of having a full faculty of six or seven professors, and giving its instruction in didactic lectures extending only through four or five months of each year, the faculty was made to consist of only four professors, the annual term of instruction nine months, and the method of teaching was by recitations and demonstrations, as in other departments of scientific and literary study. The general arrangement of classes and professorships will be understood from the university catalogue for 1875-'76, which says: "The length of the session (nine months) renders it convenient and eligible to distribute the subjects of instruction among a smaller number of professors than in the other medical schools of the United States, whose sessions are only four or five months long. Thus, to one professor are assigned physiology and surgery; to another, human anatomy and materia medica; to a third, chemistry and pharmacy; and to a fourth, medical jurisprudence, obstetrics, and the practice of medicine. This distribution re-

ders it practicable to bring the different subjects to the attention of the student in their natural and successive order. The arrangement of the lectures is such that he acquires a competent knowledge of anatomy, physiology, and chemistry before he enters upon the study of the principles and practice of medicine and surgery, which can only be studied properly in the lights shed upon them by the former." The graduation of the student is made to depend "upon satisfactory evidences of attainments only, without regard to the length of time he may have been attending the lectures."

The Medical School of the Valley of Virginia, or as it is more generally called, the Winchester Medical College, was organized at Winchester in 1826.* Like the medical department of the University of Virginia, it was organized on the plan of a long course of annual instruction with a small number of professors. The first faculty consisted of John G. Cooke, M. D., professor of the theory and practice of physic and obstetrics; Philip Smith, M. D., professor of *materia medica*; H. H. McGuire, M. D., professor of anatomy and physiology, and A. F. Magill, M. D., professor of surgery and chemistry. The annual college term continued from October 1 to June 1. The number of students in attendance was small and never subsequently increased sufficiently to give the school adequate support. It is not mentioned in the *Statistics of Medical Colleges* published by T. Romeyn Beck, M. D., in 1839, and although included in the list contained in the full report of Dr. F. C. Stewart to the American Medical Association in 1849, no statistics concerning the number of students or graduates are given by him. Since the war it has ceased to exist.

In 1827 the Washington Medical College was organized in Baltimore, Md., and the first course of instruction was given in the autumn and winter of 1827-'28. Its degrees were conferred by the Washington College in Pennsylvania, until 1833-'34, when it received an independent charter from the legislature of Maryland. The following facts are taken from a full history of the institution furnished, in manuscript, by John F. Monmonier, M. D. The faculty as first organized, in 1827, was composed of Horatio G. Jameson, M. D., professor of surgery; Samuel Annan, M. D., professor of anatomy; W. W. Handy, M. D., professor of obstetrics; Samuel R. Jennings, M. D., professor of *materia medica*; James H. Miller, M. D., professor of practice of medicine; and Henry Vethake, M. D., professor of chemistry. After the first course of lectures was completed the professor of chemistry resigned and Dr. James B. Rogers was elected to fill the vacancy. The faculty as thus organized continued regular annual courses of instruction to small classes until the reception of an independent charter in 1833, when they undertook to erect new college buildings sufficient to accommodate the work of the college, and room for hospital patients for clinical purposes. During the progress of this work Professors Annan, Rogers, and Jame-

* Thacher's American Medical Biography, p. 75.

son resigned, and their places were filled by the election of J. C. S. Monkur, M. D., E. Foreman, M. D., and J. R. W. Dunbar, M. D. The new college and hospital building was completed and occupied in October, 1836, but the classes of students did not increase in numbers, as had been expected from the better accommodations and clinical facilities, and consequently little or no progress was made in paying the debt contracted by the faculty in constructing the building. Consequently, after occupying it until 1848, it was abandoned to its creditors, and the college moved to another building.

In 1839 the legislature of Maryland passed an act supplementary to the original charter granted in 1833, by which university privileges were granted to the college, authorizing the organization of the three other faculties or colleges, namely, those of law, divinity, and arts and sciences, with such academic or preparatory schools as might be deemed essential to the support of said higher faculties. Nothing, however, was done under this supplementary charter, the medical faculty alone continuing its regular courses of instruction to small classes until 1853, when financial embarrassments had again accumulated to such a degree as to cause a suspension of all further active operations. During the interval from 1836 to 1853 the chair of surgery was occupied successively by Valentine Mott, M. D., George Bell Gibson, M. D., Reginald E. Wright, M. D., and W. Willis Baxley, M. D.; that of practice, by Thomas E. Bond, M. D., and John C. S. Monkur, M. D.; that of anatomy, by W. T. Leonard, M. D., and A. Snowden Piggott, M. D.; that of obstetrics, by G. C. M. Roberts, M. D.; and that of chemistry, by Reginald E. Wright, M. D. The original charter vested in the corporators, consisting of the members of the medical faculty and their successors, full power to control the institution in all its relations. It also provided a board of visitors, consisting of twenty-four members, with power to perpetuate their own organization and to advise in all matters relating to the interests of the college; but their action was merely advisory. There was no State or municipal control exercised over the institution, and no grants of public money or other pecuniary aid were given it, except for hospital purposes. In 1867 circumstances appeared favorable for reviving the college, which was done under the name of the Washington University. A building was secured, a dispensary for the poor opened, and the first course of lectures commenced on the first day of October, 1867. The new faculty consisted of Thomas E. Bond, M. D., president; G. C. M. Roberts, M. D., emeritus professor of obstetrics; A. J. Foard, M. D., professor of descriptive and surgical anatomy; J. P. Logan, M. D., professor of principles and practice of medicine; Harvey L. Byrd, M. D., professor of obstetrics; Martin P. Scott, M. D., professor of diseases of women and children; Edward Warren, M. D., professor of principles and practice of surgery; John F. Monmonier, M. D., professor of physiology; J. G. Moorman, M. D., professor of medical jurisprudence and hygiene; Joseph E. Clagett, M. D., professor

of materia medica and therapeutics; Clarence Morfit, M. D., professor of medical chemistry and pharmacy; and John N. Monmonier, M. D., demonstrator of anatomy. The reputation of the faculty and the circumstances of the country were favorable for attracting students, especially from the Southern States. The first class, consequently, numbered 149 students, 54 of whom graduated at the close of the term in February, 1868. In March, 1868, the legislature of Maryland passed an act appropriating \$10,000 for the establishment of a hospital in connection with the university. The comparatively large classes for 1867-'68 and 1868-'69 encouraged the faculty to erect a new college building and to make themselves responsible for the necessary funds. To relieve them from this embarrassment, however, the legislature made an appropriation of \$10,000, on the conditions that the faculty relinquish all claim to the property and provide for the reception of beneficiary students. Under this latter condition the faculty provided for the reception of one beneficiary student from each congressional district in the recent slaveholding States; and in compliance with the conditions attached to an annual appropriation of \$2,500 for the support of the hospital, beneficiary scholarships were offered to each senatorial district in the State of Maryland. Notwithstanding these helps and apparently liberal inducements for patronage, frequent changes took place in the personnel of the faculty, and the number of students gradually declined from 155 in 1868-'69 to 70 in 1875-'76, and the graduates from 83 in the former year to 32 in the latter.

The Medical College of Georgia, located at Augusta, was incorporated by an act of the legislature of that State in 1831, and the first course of instruction was given in 1832-'33. This college was organized, in 1828, as an academy of medicine, by Milton M. Antony, M. D. Dr. Antony was a man of learning and of enlarged views as to the sphere of duty and the measure of responsibility of the college in elevating the standard of education in the profession. In 1836 he started the Southern Medical and Surgical Journal, the first medical periodical published in the South. It was by the faculty of the college which he was instrumental in founding, and through his pen, that the suggestion for holding a convention of the faculties of the medical colleges of the United States, in 1836, was made. Although nothing was immediately accomplished, the discussion ripened into the movements which organized the American Medical Association.*

The Willoughby University, Willoughby, Lake County, Ohio, was chartered in 1834, and its first course of instruction commenced in 1835. The medical department of the University of Louisiana, at New Orleans; the Medical Institute of Geneva College, at Geneva, N. Y.; the medical department of Cincinnati College, at Cincinnati, Ohio; and the Vermont Medical School, at Woodstock, Vt., were chartered by the legislatures of the respective States in which they were located, in the year 1835.

* See History of American Medical Association.

The medical department of the University of Louisville, Ky., was organized in 1837, and the medical department of the University of the City of New York the same year.

The medical department of Hampden Sidney College, at Richmond, Va., was organized in 1838. The Albany Medical College, at Albany, N. Y., and the medical department of the Pennsylvania College, at Philadelphia, in 1839. The Missouri Medical College, at St. Louis, was organized in 1840, and the St. Louis Medical College, in the same city, in 1841.

The legislature of the State of Illinois granted a charter for the Rush Medical College, in Chicago, in 1837, but a faculty was organized and the first course of instruction given in 1843. One of the principal founders of this school was the late Daniel Brainard, M. D., who held the chair of surgery in it until the time of his death, in 1866. The college building with most of its contents was totally destroyed by the great fire of 1871. The courses of instruction, however, were continued to good classes, and an elegant new college building was completed and occupied in the autumn of 1876.

The Cleveland Medical College was organized in Cleveland, Ohio, in 1843; the medical department of the University of Buffalo, in Buffalo, N. Y., in 1846; and the Starling Medical College and Hospital, at Columbus, Ohio, in 1847. The medical department of the University of Michigan, at Ann Arbor, was instituted in 1849. All the departments of the university are under the control of the State board of regents, and the professors are paid salaries from the public funds appropriated to that purpose, and consequently are not dependent on fees paid by students. The latter pay no annual tuition or lecture fees, but only an initiation fee on admission.

The medical department of the University of Nashville, at Nashville, Tenn., the College of Physicians and Surgeons, at Keokuk, Iowa, and the Woman's Medical College of Pennsylvania, at Philadelphia, were organized in 1850.

The Medical College of Virginia, at Richmond, the medical department of the University of Georgetown, at Washington, and the Cincinnati College of Medicine and Surgery, at Cincinnati, were created in 1851. The Savannah Medical College, at Savannah, Ga., and the Miami Medical College, at Cincinnati, were established in 1852.

The Atlanta Medical College was commenced at Atlanta, Ga., in 1855, and the Medical College of the Pacific, at San Francisco, in 1858.

The Chicago Medical College, medical department of the Northwestern University, at Chicago, was organized in 1859, and its first course of instruction was commenced in October of that year. It was first established as a department of Lind University of Chicago, an institution which had received a liberal charter from the legislature of the State of Illinois. It continued to be known as the Medical Department of Lind University until the spring of 1864, when, by mutual agreement be-

tween the medical faculty and the trustees of the university, the medical school became a separate and independent institution, organized under the general incorporation law of the State, and with the name changed to the Chicago Medical College. In 1869 it was adopted by the trustees of the Northwestern University as the medical department of that institution; it still, however, retaining its own charter and board of trustees.

The founders of this college, most of whom are still active members of its faculty, were actuated by a desire to place college medical instruction on a broader and more systematic plan by lengthening the annual courses of instruction; by grading the students on the same principles as in other departments of learning, with the branches embraced in the curriculum divided into series corresponding with the grading of the classes; and requiring examinations at the close of each annual course, instead of deferring all examinations until the time for graduation. The college curriculum was made to embrace three courses of instruction, corresponding with the three years of study required, and designated junior, middle, and senior courses.

The junior course, designed for the first year of medical pupilage, was made to embrace descriptive anatomy, physiology and histology, materia medica, inorganic and practical chemistry, with dissections and training in the use of the microscope.

The middle course, designed for the second year of medical study, embraced general pathology and pathological anatomy, organic chemistry and toxicology, general therapeutics, surgical anatomy and operations of surgery, medical jurisprudence and hygiene, orthopedic surgery, psychological medicine, with hospital attendance.

The senior course, designed for the third year of medical study, embraced the principles and practice of medicine, principles and practice of surgery and military surgery, obstetrics and diseases of women and children, diseases of the eye and ear, hospital and dispensary attendance, daily, with individual training in auscultation and percussion, and in the use of all the instruments and appliances required for the diagnosis and treatment of diseases.

The full annual courses of instruction in these several departments were given between the first Monday in October and the third Tuesday in March following, the instruction to the three classes running parallel through the whole term. Examinations were required and certificates of progress given at the end of the junior and middle courses, and a final examination for the degree of doctor of medicine at the end of the senior course.

In addition to the foregoing regular annual courses of instruction, a supplementary course was given each year, extending from the first Monday in April to the last Wednesday in June, devoted chiefly to clinical instruction in the hospital and dispensary, practical work in the laboratory, with didactic lectures on special topics.

The establishment of this school was the first attempt in this country to place medical college education upon a full graded and systematic plan, in accordance with the same principles that govern in all other branches of education. It also made actual attendance upon hospital clinical instruction, during at least one college term, one of the regular requirements for graduation. The plan thus adopted in the beginning has been continued to the present time, making such changes only as would render the system more complete in its practical working.

The school has had a regular healthy growth; its first classes for the term of 1859-'60 numbered 33, of whom 12 received the degree of M. D., and those for 1875-'76, numbered 148, of whom 53 graduated at the close of the term.

The Medical College of Mobile, Ala., and the Long Island College Hospital, in Brooklyn, N. Y., were organized in 1860; the Bellevue Hospital Medical College, in the city of New York, in 1861; and the Woman's Medical College of the New York Infirmary, located in the city of New York, in 1864. The medical department of the Willamette University, located at Salem, in Oregon Territory, was commenced in 1866; the medical department of Howard University, at Washington, D. C., in 1867; the medical department of the University of South Carolina, and the Detroit Medical College at Detroit, Mich., in 1868. The medical department of the University of Wooster, at Cleveland, Ohio; the Kansas City College of Physicians and Surgeons, at Kansas City, Mo.; the Louisville Medical College, at Louisville, Ky.; the medical department of the Iowa State University, at Iowa City; and the medical department of the Indiana University, at Indianapolis, all had their beginning in 1869.

The Woman's Hospital Medical College, at Chicago, and the medical department of Lincoln University, at Oxford, Pa., were organized in 1870; and the Free Medical College for Women, in the city of New York, in 1871.

The Medical College of Evansville, Ind., chartered in 1846, was suspended for a time, and reorganized in 1872. The College of Physicians and Surgeons of the Syracuse University, at Syracuse, N. Y., and the College of Physicians and Surgeons, at Wilmington, N. C., were incorporated in 1872. The school at Syracuse adopted a graded system of college instruction similar to that of the Chicago Medical College. The medical department of the University of California, at San Francisco, was first organized under the name of the Toland Medical College, in 1864, and become a department of the University of California, in 1873.

The medical department of the University of the State of Missouri, at Columbia, Mo., and the Texas Medical College and Hospital at Galveston, Tex., were organized in 1873.

Medical schools have recently been established in Portland, Me., and in Baltimore, Md., the exact dates of the formation of which are not at hand.

STATISTICAL RÉSUMÉ.

From the foregoing statistics we learn that during the thirty years intervening between the close of the war for independence and 1810, seven medical schools were organized; in the thirty years intervening between 1810 and 1840, twenty-six new medical colleges were added to the list; and in the thirty-five years since 1840 the number of new medical schools created is forty-seven; making the whole number of medical educational institutions established in the United States during the first century of our history as a nation, eighty. We have not included in these numbers five or six mere abortive attempts to form medical schools in different localities, institutions so transient as to leave a record difficult to trace. Of the eighty which have been established, sixteen have been discontinued or suspended, leaving at this date, 1876, sixty-four medical colleges in active operation in our country.

Of these, Maine has two; New Hampshire, one; Vermont, three; Massachusetts, one; Connecticut, one; New York, nine; Pennsylvania, four; Maryland, three; Virginia, two; South Carolina, one; Georgia, three; Alabama, one; Louisiana, two; Texas, one; Tennessee, one; Kentucky, three; Missouri, three; California, two; Oregon, one; Iowa, two; Illinois, three; Indiana, three; Ohio, seven; Michigan, two; and the District of Columbia, three; leaving thirteen States without any medical college now in operation.

Four of the colleges included in the foregoing enumeration are devoted exclusively to the education of women in medicine; namely, two in New York City, one in Philadelphia, and one in Chicago.

The whole number of students attending the medical colleges in 1810 was about 650, of whom about 100 graduated at the close of the college terms for that year. The population of the United States at that time was 7,239,881. In 1840 the whole number of students in the medical colleges was about 2,500, of whom about 800 received the degree of doctor of medicine. The population of the United States in that year was 17,069,453. During the college terms of 1875-'76 the whole number of medical students in attendance on the colleges was 6,650, of whom 2,200 received the degree of doctor of medicine. The population of the States at the same time was over 40,000,000.

Without claiming absolute accuracy for the foregoing figures, they are sufficiently close for all the purposes of comparison. And they show clearly, notwithstanding all that has been said about the rapid multiplication of medical schools, that the colleges and the students during the last thirty-five years have increased in a ratio only about equal to the ratio of increase in the population of the country. The whole number engaged in teaching as professors in the several medical colleges at this time is about five hundred. In the foregoing statistics are not included colleges or schools for teaching exclusively dentistry,

pharmacy, and exclusive dogmas in medicine. Of the first there are eleven; of the second, thirteen; of the third, eleven, three of which are called eclectic and eight homœopathic.

CHARACTER AND PURPOSES OF EARLY MEDICAL SCHOOLS.

The reader of the foregoing pages will readily see that the origin of medical schools in this country has been solely from individual efforts, put forth from time to time, as the ambition of the individual or the supposed wants of the country demanded, and not from any well digested scheme or official plan of professional education adopted either by the States or by the General Government.

This remark is true, not only in relation to the origin of medical schools, but equally so in regard to their continuance and multiplication to the present time. Whenever the legislature of any State has been asked to grant a charter for a medical college, the request has generally been complied with; and in the few instances in which such requests have been denied, the parties interested have seldom found difficulty in forming a connection with some literary college or university already having authority to confer degrees in medicine as well as in general science. Some of the State legislatures, in addition to liberally granting charters for medical colleges, have also occasionally appropriated a few thousand dollars to aid in the erection of suitable buildings, but rarely to endow professorships or to defray any of the current expenses of such institutions. In the University of Michigan, and possibly in one or two other State universities, the medical professorships, like those of the other departments, are sustained by the income from the general endowment, independent of the fees paid by medical students. We may say in general terms, therefore, that the whole system of medical education in this country, represented to-day by sixty-four medical colleges distributed among twenty-four separate States, sustained by the active work of over five hundred professors, and annually aiding in the professional education of nearly seven thousand students, is the spontaneous outgrowth of the profession itself—self reliant, and almost wholly self sustained. Originating among a free people, under the laws of various educationally independent States, apparently striving to keep pace in the increase of their number and efficiency with a population which, in one century, has increased from three millions to forty millions, and extended over a territory from the Atlantic to the Pacific and from the St. Lawrence to the Gulf of Mexico, under circumstances of the freest competition, these schools constitute a subject worthy of the most careful study.

We have already seen that our medical colleges had their origin at a time when medical science and art occupied a far narrower field than at present—a time when obstetrics was yet chiefly in the hands of unlettered midwives; surgery an appendage to anatomy; and organic

chemistry, histology, and even physiology, as now recognized, hardly known; a time, too, when it was the universal practice for regular students of medicine to apprentice themselves to private preceptors of reputation, from whom they expected to receive the greater part of their professional education.

The great and pressing need, at that time, was for schools in which, after gaining a knowledge of the text books, the rude pharmacy of the preceptor's office, and the individual experience of the preceptor himself, during the first two or three years of his study, the student could review the whole in connection with such experimental demonstrations as could be given only in the laboratory, the dissecting room, and the clinical wards of the public hospital. The idea of the college was to supplement, not supersede, the work of the private preceptor.

Precisely this was what the medical colleges were originally adjusted to do, and they fulfilled the object well. Although originating in different States, wholly independent of each other, and in direct rivalry for patronage, on which they depended for support, they were remarkably similar in their organization and requirements. At first the number of professors in each school was small, and the college term eight or nine months; offering the bachelor's degree after three years of study and one college term, and the doctor's degree after one or two more years and a second course of college attendance. But as most of the students lived in small towns and country districts, remote from the colleges, making attendance on the lectures both tedious and expensive, only a part of those engaged in the study of medicine ever reached a medical college, and most of those, after taking the bachelor's degree, never returned to take a second course and the higher degree of doctor. These circumstances constituted a strong inducement for the colleges to concentrate the annual period of instruction into as short a time as possible, both for the purpose of increasing the number of students who could afford the means of attending, and the number who would take the second degree.

Under these influences, the first thirty years sufficed to cause the bachelor's degree to be abandoned by all the schools, the number of professors in each school to be doubled, and the length of the annual college term to be shortened one-third. And in twenty-five years more, from the same causes, aided efficiently by the fact that the degrees conferred by the colleges became practically recognized throughout the whole country as a sufficient license to practise medicine in all its departments, the colleges, with only one exception worth noting, had each from five to seven professorships occupied by as many different professors, and annual college terms of twelve to sixteen weeks, during which the students in one class listened to five or six didactic lectures a day, on as many different subjects, besides attending to dissections and clinical instruction when such were accessible.

The requirements for the degree of doctor of medicine were three years of study with some regular practitioner of medicine, including attendance on two courses of college instruction, such as just described, the one being simply a repetition of the other; the writing of a thesis on some medical subject; the possession of a good moral character; the attainment of twenty-one years of age; and the sustaining of a creditable examination in the several branches of medicine at the close of the second course of lectures.

It will be seen that in these requirements there was no reference to any standard of preliminary education to be attained by the student before entering upon his professional studies, except the ability to write a thesis. The requirement of a knowledge of Greek and Latin and the writing of a thesis in the Latin language was abandoned on the full reorganization of the University of Pennsylvania, in 1792. The relinquishment of natural philosophy, natural history, and botany, as requirements, soon followed, leaving only the single indirect trace of any non-professional education to which we have alluded.

Under these conditions and tendencies, by the end of the second thirty years of our history the number of medical colleges had increased from five to forty-one; the number of students attending them, from six hundred and fifty to twenty-five hundred; and the ratio of those graduating each year, from less than one in six to one in three.

CHANGES AND RESULTS.

Here we see a system of medical colleges originating spontaneously to supply the wants of a free and rapidly increasing people, and open to the most unrestricted rivalry, actively developing two apparently opposite results. In one direction the schools properly vie with each other in increasing the number of their professors, in full consonance with the rapid advancement of the medical sciences; they sagaciously seek out and enlist the services, as teachers, of the most learned, eloquent, and industrious men to be found in the profession; they spend time and money freely in filling laboratories, anatomical rooms, and museums with all the means for efficient teaching and illustration. So far their free rivalry has reference only to their office as teaching bodies, institutions for imparting instruction, and is productive of nothing but good to the profession and the people. But the anomaly consists in the fact that, at the same time they were increasing their professors, the same institutions were rapidly shortening their annual courses; cutting off all collateral requirements; failing to grade the branches of medical study as they increased in number and extent, so as to adapt them to the several years of pupilage; and even reducing the final examination to the simple process of asking a few oral questions in the mysterious "greenroom."

This most unfortunate tendency of our experiment in permitting the freest rivalry in the establishment of medical schools, results directly and necessarily from the fact that the degrees they confer, and the di-

plomas they give, have been permitted throughout the whole country, with only a few temporary exceptions, to have all the force and effect of a license to practise medicine. It requires but a moderate familiarity with the motives that govern human actions to see clearly that in a country where there are no entailments of estates, and where the great body of young men who seek the professions are without pecuniary fortunes, and largely dependent on their own industry for the means of education as well as reputation and fortune in after life, the question "Where can I get the degree of doctor, which is equivalent to a license to practise and a full admission into the ranks of the medical profession in the shortest time and consequently with the least expenditure of time and money?" exerts a very great if not controlling influence in determining where the student shall attend his college instruction. Not that medical students are a whit less conscientious in their desire to fully qualify themselves for the responsible duties of our profession than those who seek any other calling in life; but present necessity, or even convenience, easily controls when there comes with it the flattering thought that, at another time, after having earned a little money by practice, all deficiencies can be supplied by a season of reviewing in a school of the largest facilities.

Just on this half unconscious delusion, hundreds are induced to go where the requirements in time and money are least, regardless of all other advantages. The medical college in a country village, remote from all facilities for clinical instruction in hospital or dispensary, and but scantily supplied with subjects for dissection, can issue to its graduates just as large a diploma, couched in just as unintelligible Latin, and having much the same influence with the people as the school in a metropolitan city whose students can have the largest facilities for clinical and practical study. Hence it is not strange that, before the end of the seventh decade of the past century of our existence as a nation, about forty medical colleges had been organized, only sixteen of which were so situated as to afford their students any proper facilities for clinical instruction; and that those sixteen were resorted to by a little more than one-third of the whole number of those who attended medical colleges.

The general acceptance of the college diploma as full admission into the profession, thereby uniting in the hands of the same men the business of teaching and the power of licensing, has continued to the present day. It is wholly responsible for the fact that, while we have sixty-four medical colleges to-day, one-third of them are so located that they can afford their students no advantages for clinical instruction worthy of mention; and all except three or four still attempt to crowd instruction in all the departments of medicine upon the attention of mixed or ungraded classes, in annual college terms of from sixteen to twenty weeks, and exact only two such strictly repetitional courses for graduation.

This state of things, in regard to our medical schools, is made still

worse by the fact that, during the century under consideration, the system of private medical pupilage has undergone a complete change. At the beginning of that period, as we have already seen, the private study under a master was a protracted and serious work, and the resort to the college was simply to review and more fully illustrate that work; but steadily, as medical colleges increased in number, as population became more dense, and as steamboats and railroads increased a thousandfold the facilities for travel, the work of private pupilage relaxed. Indentures of medical students, as pupils, to the more noted practitioners long since ceased, and the relations of student and preceptor have become merely nominal in practice; in nine cases out of ten consisting in little more than the registry of the student's name in the doctor's office, permission to read the books of his library or not, as he chooses, and the giving of a certificate of time of study for the student to take to the medical college where he expects to graduate.

The relative positions of private pupilage and collegiate study have undergone a complete practical reversal. The latter, instead of reviewing and supplementing the former, has become the student's chief reliance for the acquisition of medical knowledge; and hence, to have maintained its adaptation or adjustment to the needs of the profession, it should have not only increased the number of its professors and its means for communicating knowledge, but also the length of its annual courses, and the division or gradation of its classes in accordance with their period of study, and in proportion to the greatly enlarged field of medical knowledge to be acquired.

Such would have been to-day the grand result worked out by our experiment of self originating and self sustaining medical schools, had they been restricted to their only appropriate functions as institutions for imparting medical instruction and advancing medical science, instead of being hampered and perverted from their natural course by assuming the office of licensing institutions; and if this incubus could be removed to-day another quarter of a century would not pass before every medical college in our country would have its annual course of instruction extended to six months, its curriculum and classes so graded that the attention of each student should be restricted to the branches adapted to his period of advancement in study, and nine-tenths of all our medical students would be in attendance on those colleges only which should afford proper facilities for full clinical and demonstrative instruction.

Let the only question presented to the mind of the student, when choosing the college he shall attend, be, where can he most certainly obtain that amount and variety of medical knowledge which will enable him successfully to pass the examination of an independent board of examiners, acting under liberal and proper rules and modes of testing the student's knowledge, and we shall have nothing to fear either from the number or the rivalry of our medical schools.

THE EVIL OF UNITING TEACHING AND LICENSING AND ITS REFORM.

The injurious tendencies of our system of uniting the work of teaching and that of licensing to practice, in an unlimited number of independent medical colleges, were seen at an early period, and clearly pointed out; and by none more clearly than by some of those engaged as teachers themselves. So true is this that the legislatures of some of the States, in organizing and regulating their respective State medical societies, made some ineffectual attempts to lessen the evil by legislation. This was more particularly the case in South Carolina, Maryland, Delaware, Massachusetts, and New York.

As early as 1839, at an annual meeting of the Medical Society of the State of New York, the following resolution was adopted by a vote of fourteen to four :

Resolved, That the right of teaching ought to be separated as much as possible from the power of conferring degrees or license.

The following year a committee, consisting of James R. Manly, M. D., of New York City ; T. Romeyn Beck, M. D., of Albany ; and John McCall M. D., of Utica, submitted to the same society an able and interesting report on the subject of medical education, in which occurs the following pertinent and significant language :

But in view of the diploma becoming depreciated by the rapid establishment of new schools, it may well become a question deserving serious consideration whether, at no distant period, the right of teaching and licensing should not be *disjoined*. An incidental difficulty to the adoption of this suggestion is the fact that we are surrounded by institutions in other States which might or might not follow it, and thus our students be induced to desert our own colleges.*

In 1837 the same view was advocated by some of the ablest members of the profession in Philadelphia, and they proceeded so far as to organize an institution for the purpose of examining candidates and of conferring degrees wholly independent of the business of teaching. A petition signed by one hundred and twenty-six physicians, residents of that city, was presented to the legislature of the State, asking for a charter giving legal effect to their organization, but the charter was not granted, and the project failed.

In 1844 the subject was again brought prominently under consideration in the New York State Medical Society by the writer of these pages. The discussion of the same subject was continued in the annual meeting of 1855, and resulted in the call issued by that society for a convention of delegates from all the medical colleges and societies in the United States, which was held in New York, in May, 1846, and from which originated the American Medical Association.

We make these historical allusions to show that neither those engaged in medical teaching, nor the profession at large, have been unmindful of the evil to which so much importance has been attached.

* See Transactions of the New York State Medical Society for 1840.

Yet it still exists in all its force. That the colleges have failed to keep themselves adjusted to the needs of the profession, in regard to the length of their annual courses of instruction, the systematic classification of the branches included in their curricula, the corresponding grading or division of their classes, and the exaction of a reasonable standard of preliminary education, has been still more fully appreciated and acknowledged. Not only is this appreciation indicated by the criticisms in our medical periodicals and the discussions in our medical societies—and by the more general efforts of the colleges, since 1850, to increase the number of their professors, the fulness of their curricula, and the piecing out of their annual courses of instruction by two or three weeks of preliminary lecturing at the beginning and short spring courses at the end of the regular terms, all of which the student might attend or not as he chose—but, in a still more formal manner, by the proceedings of two or three conventions of delegates from the schools only, in which all the defects here stated relating to preliminary education, inadequate length of the annual courses of instruction, and the urgent need of a systematic division of the branches taught into groups appropriate for each year of study, and the consequent grading of the classes, with annual examinations of each class, have been fully stated, and a thorough plan for remedying them devised and urgently recommended to the schools for their adoption.

The first of the conventions to which we allude was held in Cincinnati, in May, 1867, and was presided over by the learned president of the medical faculty of the University of Pennsylvania. The second was held in the city of Washington, in May, 1870, and was presided over by the justly distinguished head of the faculty of the Jefferson Medical College. A third convention of less formal character was held in the city of Chicago, in June, 1876. If you ask me why these reasonable and highly important recommendations have not been adopted by the majority of the schools, I can only point you for answer to the paragraph already quoted from the report on medical education made to the New York State Medical Society, in 1840, by that learned trio, composed of Beck, Manley, and McCall; or, more directly, to the fact that while the faculty of each school frankly acknowledges the defects in adaptation to the present enlarged field of medical science and art, and the urgent needs of the profession, each waits for the other to move first, lest by placing higher requirements upon the time and resources of the student it should cause its own halls to be deserted for those of its less exacting neighbor.

The efforts in this direction, however, have not been entirely fruitless of practical results. In 1859 the Chicago Medical College, now the medical department of the Northwestern University, was organized for the express purpose of testing the practicability of establishing a school with a thoroughly graded and consecutive system of instruction. Its curriculum was made to embrace thirteen professorships, arranged in

three groups, one appropriate for each of the three years of study required. The students attending were correspondingly divided into three classes, junior, middle, and senior. Each class was required to devote its time thoroughly to the group of branches and lectures belonging to its year of advancement in study, and to be examined fully in those branches at the end of the college term. Each of the three courses was continued six months of the year, and actual attendance on hospital clinical instruction and practical work in the chemical, anatomical, and microscopic or histological laboratories was added to the requisites for eligibility to graduation. The very satisfactory success of this institution during the past fifteen years and its present prosperity certainly demonstrate the practicability of the scheme.

In 1871 the medical school of Harvard University, one of the oldest and most influential medical institutions in our country, also adopted a fully graded system of instruction, dividing her classes, and extending her courses of instruction throughout the collegiate year, and has continued this plan to the present time, adding annually to the perfection of its details, and adding also to her own prosperity and influence. The new medical school of Syracuse University, New York, has practically adopted the same scheme; and the annual announcements of several other medical schools, for the present year, including some of the most influential and important institutions in the country, give unmistakable evidence of their having taken initial steps in the direction of this most desirable change.

But our medical schools, aided by the work of the private preceptor do not constitute the whole educational force or influence operating upon the profession in this country. Our social or society organizations, city, county, district, State, and national, have exerted throughout the whole period of our history a most potent influence over the educational interests of the profession.

II.—SOCIAL MEDICAL ORGANIZATIONS.

No apology is necessary for including medical societies among the educational institutions of our profession; for whatever increases the enterprise, stimulates the spirit of philosophical investigation, or adds an item to the stock of knowledge possessed by the profession, or whatever elevates it in the scale of social existence, is as truly a part of its educational means as is the study of its text books and the frequenting of its schools. The latter may, indeed, constitute the foundation, but many other things are required to complete the superstructure of a fair medical education.

And among these other things, no one is of greater importance than well organized associations, admitting of frequent communication and free interchange of thought among their members. Such associations not only elicit observations, stimulate investigations, and save from

oblivion numberless facts; but they counteract the selfish feelings of individuality, they diffuse knowledge, they elevate the social feelings and they embody and generalize facts that would otherwise remain isolated and useless.

The organization of the New Jersey State Medical Society in 1766 and that of Delaware in 1776, has already been mentioned in the first part of this report. The next important step in this direction was the passage of an act by the legislature of Massachusetts in 1781 incorporating the Massachusetts Medical Society. The objects set forth in the act of incorporation were the promotion of medical science and the regulation of all matters pertaining to the profession. To enable it to accomplish these desirable objects, the society was authorized to appoint a board of censors, whose duty it was to examine all candidates for admission into the profession in that State, and grant licenses to such as were found qualified. This society, together with that formed in New Haven in 1784, and the New Hampshire Society, chartered in 1791, exerted a very salutary influence over the profession throughout the Eastern States.* To encourage the cultivation of individual talent and still further promote the advancement of medical science, a wealthy and enlightened citizen of Boston, Mr. Ward Nicholas Boylston, established in 1798 a perpetual legacy, yielding \$133 per annum. Thirty-three dollars of this sum were to aid in the establishment of an anatomical museum, and the remaining one hundred to be awarded annually as premiums for medical essays, under the direction of the fellows of the Massachusetts Medical Society. The noble intentions of the donor have been faithfully carried out by the society, thereby calling into existence annually a number of interesting essays which now embrace many of the most important topics belonging to medical science.

The Massachusetts Medical Society also enjoys the honor of being the first in this country to issue a regular volume of transactions, filled with the most interesting papers read before it. The first number of the transactions was published previous to 1800, and contained papers written by E. A. Holyoke, M. D., of Salem; William Baylies, M. D., of Dighton; Joseph Orne, M. D., of Salem; N. W. Appleton, M. D., of Boston; Edward A. Wyer, M. D., of Halifax, N. S.; Isaac Rand, M. D., of Cambridge; Isaac Rand, jr., M. D., of Boston; Joseph Osgood, M. D., of Andover; Thomas Welsh, M. D., of Boston; and Thomas Kast, M. D., of Boston.

The most important of these papers were: "An account of the weather and epidemics of Salem, in the county of Essex, for the year 1786, with a bill of mortality for the same year," by E. A. Holyoke, M. D., written in 1787; "A case of empyema successfully treated by

cephalus internus, by operation," by Isaac Rand, jr., in 1789; and "An account of an aneurism of the thigh perfectly cured by an operation, and the use of the limb preserved," by Thomas Kast, in 1790. The second volume of the society's transactions was not published until 1808.

The Philadelphia College of Physicians was formed in 1787 and incorporated by an act of the legislature of Pennsylvania in 1789. The Philadelphia Medical Society was organized in the same city in 1789, and was incorporated in 1792. A brief history of the last named society may be found in the Medical News and Library for January, 1843.

The medical society which had existed in New Jersey since 1766 was incorporated by an act of the legislature in 1790, under the name of the Medical Society of the State of New Jersey. The act of incorporation conferred the power to appoint censors for the purpose of examining and licensing candidates for permission to practise in that State; also to establish district or county societies, whose delegates were to constitute the parent or State society. The term of study required and all the regulations adopted were similar to those prescribed by the law of 1760 in New York.

The Medical Society of South Carolina was organized in 1789 and incorporated in 1794, but the provision for examining and licensing candidates for admission into the profession was made in 1817.

In 1799 the Medical and Chirurgical Faculty of the State of Maryland was incorporated, with power to elect, "by ballot, twelve persons of the greatest medical and chirurgical abilities in the State, who shall be styled the Medical Board of Examiners for the State of Maryland." It was the duty of this board "to grant licenses to such medical and chirurgical gentlemen as they, either upon a full examination or upon the production of diplomas from some respectable college, may judge adequate to commence the practice of the medical and chirurgical arts." Under a supplementary act passed in 1801 the board of examiners required all graduates of medical colleges, as well as others, to apply for and obtain a license before being authorized to practise. The penalty for violating these provisions was \$50 for each offence, to be recovered in the county court where the offender may reside; and the judges of those courts were directed to present the several acts relating to medicine and surgery, annually, in charge to their respective grand juries.* Every person licensed by the examining board was, by virtue of such license, constituted a member of the State society. It is thus seen that Maryland was not only among the earliest to enact laws to protect her citizens against the inroads of ignorance and empiricism, but also that her laws relating to this subject were both simple and effectual.

The law for organizing State and county medical societies in New York was passed by the legislature of that State in April, 1806. The

* See act of incorporation, supplementary acts, &c. 18mo. Baltimore, 1822.

character of the law and its sanction by the governor were chiefly due to the enlightened views and labors of John Stearns, M. D., Alexander Sheldon, M. D., and Asa Fitch, M. D., who, as a committee, represented the profession in the counties of Saratoga, Montgomery, and Washington. The first two were members of the legislature at that time, and were greatly aided in the final passage of the bill by Hon. William W. Van Ness. The law authorized the legally qualified physicians and surgeons of each county to form themselves into a society, named after the county in which it was formed, with power to choose officers, make all needful rules for the government of its members, and appoint a board of censors to examine and license all the applicants for admission into the profession in their respective counties; but no one could be admitted to an examination until he had given evidence of having studied three years with some practitioner, and had arrived at the age of twenty-one years. A State medical society was also provided for, to be composed of one delegate from each county society, and such permanent members as the society should from time to time elect, not exceeding two in any one year. It was required to meet annually, at the capitol in the city of Albany, to elect officers and to transact such other business as the interests of the profession should require. It was also required to divide the State into four medical districts, and to appoint a board of censors for each, whose duty it was to examine all candidates for license to practise medicine and surgery who should present themselves, after having studied the required length of time. The law also forbade any one to enter upon the practice of medicine and collect pay for his services without first procuring either a license from a county or State society or a diploma from some regularly organized medical college. Candidates who might be rejected by a county board had the right to appeal to the censors of the State society for another examination; but not vice versa. Within two years after the passage of this law nearly every county in the State had a regularly organized medical society with its board of censors and the commencement of a library.

The first meeting of the State society was held at the capitol in Albany, in February, 1807; its organization was completed according to the provisions of the law. Thus two great and important objects were accomplished, namely, a thorough organization of the profession in a manner most favorable for its advancement in science and social elevation, and the provision for having all candidates examined before admission by practitioners themselves, without the intervention of any other class.

In the same year, 1807, an act was passed making some further provisions relating to the internal organization of the State society, and

In May, 1812, the legislature increased the foregoing penalty to \$25 for each offence, and required that all licenses in future should be deposited in the county clerk's office. The proviso exempting from penalty those who might use, for the sick, such roots or herbs as are the growth of the United States, though evidently designed only to protect nurses and families in the use of simple domestic remedies yet served the purpose of covering all kinds of quackery, it being only necessary to plead the use of nothing but indigenous remedies.

In 1813 the several preceding acts were revised and consolidated into one statute, and continued without alteration until 1818, when the legislature passed an act increasing the term of medical study to four years; but one year might be deducted if the student had pursued classical studies that length of time, after the age of sixteen years, or had attended a complete course of the lectures delivered by each of the professors in some regular medical college.

In the following year another act was passed prohibiting the medical colleges from granting the degree of doctor of medicine to any student who had not fully complied with the requirements of the law of 1818.

The next law of importance enacted in New York was passed by the legislature in 1827. This leaves the term of study and the conditions for obtaining a license or a diploma essentially the same as before, but the twelfth section provides that—

No person shall receive from the regents of the university of the State a diploma conferring the degree of doctor of medicine unless he shall have pursued the study of medical science for at least three years after the age of sixteen with some physician or surgeon duly authorized by law to practise his profession, and shall also have attended two complete courses of all the lectures delivered in an incorporated medical college, and have attended the last of such courses in the college by which he shall be recommended for his degree.

And section twentieth declares that no person under the age of twenty-one years can be entitled to practise physic and surgery in that State. Another provision of this law required all regularly licensed physicians to file a copy of their license or diploma in the clerk's office, and become members of the county society in the county of their residence before they were legally entitled to collect pay for their services.

The foregoing provisions and penalties continued on the statute books, though seldom enforced against unlicensed practitioners, until 1843, when the penalty for practising without a license and the prohibition of power to collect fees were both repealed, but leaving the provisions regulating medical education and organization of medical societies unchanged.

The laws of New Jersey were so amended in 1816 as to prohibit all unlicensed persons who were not already engaged in practice from entering upon those duties in that State, under a penalty of \$25 for each offence. Such persons were also disqualified from collecting any compensation for their services. And instead of containing the neutralizing

proviso which we have noticed in the laws of 1813 and 1818, in New York, the New Jersey law declared that—

This act shall be so construed as to prevent all irregular bred pretenders to the healing art, under the names or titles of practical botanists, root or Indian doctors, or any other name or title involving quackery of any species, from practising their deceptions, and imposing on the ignorance and credulity of their fellow citizens.

Some unimportant alterations in the medical laws of New Jersey were made by the legislature in the years 1818, 1823, 1825, 1830, 1838, but without changing essentially their more important provisions.

The Rhode Island State Medical Society was incorporated in 1812, and that of Maine in 1821. The regulations adopted in all the New England States were very similar. They all required the appointment of State or district boards of censors for examining and licensing candidates to practise; also some degree of preliminary education, a term of medical study not less than three years, and the attainment of twenty-one years of age. In Massachusetts, Rhode Island, and New Hampshire, the boards of censors were unconnected with the medical colleges of those States; and the laws required all persons intending to commence practice, whether educated in those States or already licensed by the institutions of other States, to apply to some one of the boards of censors for a license before they were authorized to enforce payment for their services. In Connecticut and Maine but one board of censors was established in each State, which was authorized to examine all candidates, whether for a license or the higher degree of doctor of medicine. These boards were composed, in the one State, of the medical faculty of Yale College, associated with an equal number of censors appointed by the president and fellows of the Connecticut State Medical Society, the president of the society being always one of the number; and, in the other, of the medical faculty of Bowdoin College, and an equal number of censors chosen by the Maine State Medical Society.

In 1822 the legislature of the State of Delaware passed a law enabling the medical society of that State to appoint a board of medical examiners consisting of fifteen members, whose term of office was to continue five years, and who were directed to examine and license all candidates found qualified to practise in that State. The requisites for admission to an examination by such board were three years' study with some respectable practitioner, the attendance on one full course of lectures in some medical college, and the attainment of twenty-one years of age; but graduates of respectable colleges were licensed, on the exhibition of their diplomas, without an examination. The same penalties were enacted against unlicensed practitioners as in the State of Maryland.

The Medical Society of the District of Columbia was incorporated by an act of Congress in 1819, with power to appoint a board of censors, composed of five practitioners, whose duties and privileges were the same as those appointed by the Delaware State Medical Society; and the same penalty was enacted against unlicensed and irregular practitioners.

The States of South Carolina, Georgia, Alabama, Mississippi, and Louisiana have all had laws of a similar character for the regulation of medical education and practice.

In 1817 the legislature of South Carolina enacted a law providing for the establishment of two medical boards of examiners, one in Charleston and the other in Columbia. They were required to examine all applicants for permission to practise in that State, except such as had received a diploma from some medical college, and to grant licenses to those they deemed qualified; and every person practising without such license or diploma was liable to be indicted and fined in a sum not exceeding \$500, and imprisoned a term not exceeding two months. These regulations continued in force until 1838, when all restrictions and penalties were abolished by an act of the legislature. The act by which a fine of \$500 was provided for all persons who should practise physic in Georgia without a license from the board of physicians was passed in 1826, and continued in force until 1835, when it was repealed. In 1839 the examining board of physicians was reorganized and again invested with power to examine applicants and grant licenses, but with the following proviso, which practically nullified the whole act:

Provided nothing in the said revised act shall be so construed as to operate against the Thomsonian or botanic practice, or any other practitioner of medicine in this State.

In Alabama an act was passed in December, 1823, requiring the establishment of five boards of medical examiners in the State, each consisting of three members, elected by a joint vote of both houses of the State legislature. Their powers and duties, in regard to examining and licensing candidates for admission into the profession, were the same as those existing in South Carolina. The penalty for practising without a license or diploma was a sum not exceeding \$500 for each offence. But the examining boards were all abolished between 1840 and 1845, which operated as a repeal of all laws on the subject.

In Mississippi, laws regulating the practice of medicine very similar to those in South Carolina and Alabama were enacted by the first legislature after the organization of the State government. The Medical Society of the State of Mississippi was organized in accordance with a law passed by the legislature in 1829. The laws of this State establishing boards of examiners, registering licenses, organizing the State society, and prohibiting all irregular practice were very complete and efficient. But when the State constitution was revised, in 1834, the several boards of examiners were omitted, which operated as a repeal of all restraints on the practice of medicine in that State. The State medical society, however, continued its organization, though with less efficiency, for many years later.

In Louisiana, laws relating to the practice of physic and surgery were passed in 1808 and revised in 1816 and 1820. In the latter year two medical boards were established, one for each supreme judicial district

in the State, each to consist of six members, with one apothecary attached to the board in the first district; and all to be appointed by the governor, with the advice and consent of the senate. It was the duty of these boards to examine all candidates for license to practise in their respective districts, and license such as were found qualified; but those who had graduated at some respectable medical college were permitted to obtain a license, on exhibiting their diploma, without an examination. The apothecary attached to the board in the first district was to examine and license apothecaries, who were under the same regulations as practising physicians. The penalties for violating the laws of this State, by practising without a license, were a fine of \$100 for the first offence, and, for the second, a fine not exceeding \$200 and imprisonment not more than one year. The attorney-general was required to prosecute for all violations of the law. No legal provision was made for organizing a State medical society.

The Tennessee State Medical Society was incorporated by an act of the legislature in 1830, with a board of censors authorized to examine and license all persons who might present themselves for examination touching their skill in the practice of medicine and surgery; but no term of study was required, and no penalties were provided for practising without a license.

In Ohio, Indiana, and Michigan, laws were passed, soon after the respective State governments were organized, incorporating State, county, or district medical societies, with power to appoint censors and license candidates to practise, very similar to the laws relating to the same subjects in New York.

From the foregoing brief reference to medical legislation, and the organization of medical societies, it will be seen that during the first thirty or forty years of our national history the legislatures of nearly all the States then existing, except Pennsylvania, Virginia, and North Carolina, had enacted laws for the avowed purpose of protecting the citizens from the impositions of ignorance and empiricism, and of promoting medical science. That these were the real motives for enacting the laws referred to, and especially the first one named, that of protecting the citizen against imposition, is abundantly shown by the preambles and titles attached to the several acts. The idea of protecting the profession, or of investing it with special privileges, was the discovery of a later period, and was diligently fostered by all the advocates of the various *pathies* and *isms* of the day. And yet so persistently did the advocates of these represent to the politicians and legislators of that time the idea that all the penalties and restrictions against uneducated and unlicensed practitioners were only designed to enable the regular profession to enjoy a monopoly of the practice, and to restrict the

together with the rapid increase in the number of medical colleges, and the much larger proportion of students who obtained diplomas instead of applying to the examining boards for license, caused such boards to become neglected and practically useless, and even many of the State medical societies ceased to maintain an active existence.

It was during this period of adverse legislation and active aggression on the part of the advocates of the two leading systems of exclusive dogmas in medicine that the movement in favor of establishing a permanent national medical organization began to attract attention and to assume definite shape. The first distinct proposition for a national convention emanated from the faculty of the Medical College of Georgia, at Augusta, and was advocated in the columns of the Southern Medical and Surgical Journal, published at the same place, as early as 1835. The proposition was limited, however, to a call for delegates from medical colleges only, and was sustained by those desiring an extension of the lecture term in the colleges and a higher standard of attainments for graduation. Although the project elicited considerable discussion, no action was taken concerning it by some of the older and more influential schools, and consequently no convention was held. The topics involved, nevertheless, continued to be discussed in the medical periodicals, and still more freely in the anniversary meetings of the State and district medical societies. At the annual meeting of the Medical Society of the State of New York, in February, 1839, John McCall, M. D., of Utica, offered the following preamble and resolution, which were adopted by the society:

Whereas a national medical convention would advance, in the apprehension of this society, the cause of the medical profession throughout our land, in thus affording an interchange of views and sentiments on the most interesting of all subjects, that involving men's health, and the means of securing or recovering the same: Therefore,

Resolved, That in our opinion such convention is deemed advisable and important, and we would hence recommend that it be held in the year 1840, on the first Tuesday in May of that year, in the city of Philadelphia, and that it consist of three delegates from each State medical society and one from each regularly constituted medical school in the United States; and that the president and secretary of this society be and they are hereby instructed and required to transmit, as soon as may be, a circular to that effect to each State medical society and medical school in the United States.

This proposition was approved by several State medical societies, and delegates were appointed by some of them, but the societies and schools in Philadelphia did not respond, and no convention was held. The subject of medical education, however, continued to elicit discussion at nearly every meeting of medical societies in all parts of the country. Some resolutions were presented to the New York State Medical Society at its annual meeting in February, 1844, by the writer of these pages, then a young member representing the Broome County society, and by Alexander Thompson, M. D., of Cayuga County, both advocating a higher standard of attainments for students of medicine, and the withdrawal of the licensing authority from the colleges. These resolutions led to much

discussion, which was renewed at the next annual meeting, in 1845, and resulted in the adoption of the following preamble and resolutions offered by the present writer:*

Whereas it is believed that a national medical convention would be conducive to the elevation of the standard of medical education in the United States; and whereas there is no mode of accomplishing so desirable an object without concert of action on the part of the medical colleges, societies, and institutions of all the States: Therefore

Resolved, That the New York State Medical Society earnestly recommends a national convention of delegates from medical societies and colleges in the whole Union, to convene in the city of New York on the first Tuesday in May, in the year 1846, for the purpose of adopting some concerted action on the subject set forth in the foregoing preamble.

Resolved, That a committee of three be appointed to carry the foregoing resolution into effect.†

The committee appointed in compliance with the last resolution consisted of N. S. Davis, M. D., of Binghamton, and James McNaughton, M. D., and Peter Van Buren, M. D., of Albany. The committee discharged its duties faithfully and successfully, and the proposed convention was held at the time appointed, May, 1846. Delegates were present from the institutions of sixteen States, namely, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Georgia, Mississippi, Indiana, Illinois, and Tennessee. The convention was organized by the election of the following officers: Prof. Jonathan Knight, of New Haven, president; John Bell, M. D., of Philadelphia, and Edward Delafield, M. D., of New York, vice-presidents; and Richard D. Arnold, M. D., of Savannah, and Alfred Stillé, M.D., of Philadelphia, secretaries. The sessions of the convention were continued three days, during which all the great questions pertaining to the interests of the profession were discussed with commendable order and liberality, and resulted in the appointment of committees on the following subjects: the standard of preliminary or general education necessary to qualify individuals to enter upon the study of medicine; the standard of medical education requisite for graduation; a nomenclature of diseases; a code of ethical rules; and a plan of organization for a permanent national association. All these committees were to report in full at an adjourned meeting to be held in Philadelphia on the first Tuesday in May, 1847.

On the reassembling of the convention at the appointed time in Philadelphia, about two hundred and fifty delegates took their seats, representing forty medical societies, State and local, and twenty-eight medical colleges, embracing the institutions of twenty-two States and those of the District of Columbia. All the committees appointed at the previous meeting made able and interesting reports, which can be found in full

in the first volume of Transactions of the American Medical Association. The committee on permanent organization reported a constitution and by-laws, which were adopted, and the convention was resolved into the American Medical Association, which immediately elected the following officers: President, Nathaniel Chapman, M. D., of Pennsylvania; vice-presidents, Jonathan Knight, M. D., of Connecticut, Alexander H. Stevens, M. D., of New York, James Moultrie, M.D., of South Carolina, and A. H. Buchanan, M. D., of Tennessee; secretaries, Alfred Stillé, M.D., of Philadelphia, and J. R. W. Dunbar, M.D., of Baltimore; treasurer, Isaac Hays, M. D., of Philadelphia. The association, as thus organized, adopted the code of ethics which has since become the universal law of the profession in this country, passed resolutions strongly recommending a standard of preparatory education for students before entering upon medical studies, longer annual lecture terms in the colleges, and a higher standard of medical attainments for the degree of doctor of medicine. The constitution adopted made the association essentially a representative body, composed of delegates from medical societies—State, district, and local—medical colleges, and permanent hospitals throughout the whole country. Its meetings have been held annually, and, as the constitution prohibited the holding of two consecutive meetings in the same city, they have visited successively all the larger cities of the United States, stimulating by their presence the formation of State and local societies, and bringing into closer relations, better acquaintance, and greater harmony the profession of the whole country. That the formation of the national organization gave a new impulse to professional organizations in all the States is clearly evident from the fact that, owing to causes already explained, for ten or twelve years prior to such organization medical societies had not only ceased to be formed in new localities, but many of those previously existing under special charters were maintaining only a nominal existence; while at the present time we know of but one State in the Union that has not a State medical society as well as many affiliated local societies. The American Medical Association and nearly all of the more recently formed State and local societies are purely voluntary organizations, untrammelled by legal enactments or charters, but all adopting and being governed by a common code of ethics, and animated by common purposes, namely, the mutual improvement of all the members and the advancement of the interests and usefulness of the profession. When it is remembered that most of the city societies hold meetings once a month, the county and district societies from two to four times a year, and the State and national organizations annually, and that, at all these meetings, cases are reported, papers read, and views interchanged freely upon all subjects connected with the science and art of medicine, and that the national association and nearly all the State societies publish all the more important contributions of their members in annual volumes of transactions, it will be generally conceded that the aggregate value of the influence of these social organizations on the

education and usefulness of the profession cannot be easily overestimated. The value of these organizations is not restricted to the profession itself, or to its indirect influence on the community by increasing the learning and skill of their members, but to their direct influence can be traced a very large part of all the more important sanitary measures by which the health of cities, towns, and even whole districts of country has been so much improved in modern times. The establishment of municipal and State boards of health, for the special protection of the people against contagious and epidemic diseases and the preservation of vital statistics, is preëminently due to the influence of our medical societies.

We cannot close this brief chapter on the history of our medical society organizations better than by quoting the following from the first page of the History of the American Medical Association, published in 1855:

It has been said by some one that associated action constitutes the mainspring, the controlling motive power, of modern society; and whoever surveys with the eye of intelligence the present aspect and tendencies of civilization, will readily acknowledge the truth of the remark. It is by the association of capital that those great enterprises for facilitating commerce and intercourse among States and nations are being prosecuted with an energy and success which promise to break through the strongest barriers of nature, and make neighbors of nations on the opposite sides of our globe. It is by the association of mind with mind, in the church, the conference, the presbytery, the diocese, and the general convocations, that the moral force of Christendom is stirred up, concentrated, and brought to act with mighty power in disseminating the sublime truths of the Christian religion. So, too, by the association of mind with mind, in the rapidly recurring anniversary meetings of the learned, not only is thought made to elicit thought, and the generous ambition of one made to kindle a kindred impulse in another, but the rich and varied fruits of many intellects are brought to a common storehouse, and made the common property of all; for intellectual treasures, unlike those of a material nature, neither become monopolized by concentration, lost by use, nor diminished by diffusion or communication to others. If it is true that associated action constitutes so prominent an element in the progressive tendencies of modern society as a whole, it is no less so in reference to the several classes of which the whole is composed; and of these individual classes none holds a more important or influential relation to all the rest than that which is made up of the active practitioners of the healing art. Forced by the nature of their calling to become preëminently cultivators of the whole field of natural science and philosophy, while they have the freest possible access to the homes and hearts of all classes, they are daily exerting an influence over the physical and intellectual elements of society second to that of no other class in Christendom. Hence, whatever is calculated materially to influence the character of the medical profession is worthy of one page, at least, in the historical records of our race.*

See History of American Medical Association, by N. S. Davis, M. D., pp. 17, 18. Lippincott, Grambo & Co., Philadelphia, 1855.

P. 792

A STATEMENT
OF THE
THEORY OF EDUCATION
IN
THE UNITED STATES OF AMERICA,
AS APPROVED BY
MANY LEADING EDUCATORS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1874.

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LETTER

OF THE

COMMISSIONER OF EDUCATION.

LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., December 15, 1874.

SIR: A meeting of State-superintendents and others was held in Washington, November 13, 1872, to make preliminary arrangements for the representation at Vienna of the condition of education in the United States. A full report of this meeting will be found in the Circular of Information of this Bureau for November, 1872, pages 29-40.

At this meeting, it was resolved (see page 36 of the circular above referred to) "that we consider it exceedingly desirable that there should be a brief statement, embodying clearly the idea of the relation of the American free school to the American Commonwealth; and we recommend to the Commissioner of Education that such a statement shall be prepared as can be signed generally by the educators of the country as a declaration of their sentiments."

The preparation of this statement was intrusted to Hon. Duane Doty, superintendent of city-schools, Detroit, Mich. In conjunction with Hon. W. T. Harris, superintendent of city-schools, Saint Louis, Mo., he prepared a statement, which was subsequently submitted to the several leading educators whose names are hereto affixed in witness of their approval of the statement.

Although this was not prepared and agreed upon in time to be used at Vienna, yet, in view of the constant demands made upon this Bureau, especially by foreign investigators, for a statement of the school-system in this country; and in view of the natural tendency of such foreigners to fall into the error of supposing that there *is* a national system of education under control of the General Government of the United States; and, moreover, in consideration of the dangers that have been and are threatening the welfare of the free public-school-systems of many of the States, a clear statement of such fundamental principles as all American educators can agree upon seems most timely, as furnishing to the friends of education everywhere a ready means of refuting the false assertions of those who oppose the establishment and prosperity of the schools in their several localities.

The free public education of the children of the United States depends everywhere upon the action taken by the several States and by the citizens of those States in their several localities. The existence of a republic, unless all its citizens are educated, is an admitted impossibility. The school-systems of many States have suffered from the results of the war; and their speedy and healthy advancement to the greatest efficiency possible is, therefore, of vital interest to the whole country.

For the above reasons and as a matter of great convenience to this Office in replying to constant demands for such information, I recommend the printing of this statement.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

Hon. C. DELANO,
Secretary of the Interior.

Approved and publication ordered.

B. R. COWEN,
Acting Secretary.

STATEMENT
OF THE
THEORY OF EDUCATION
IN
THE UNITED STATES.

A STATEMENT OF THE THEORY OF EDUCATION IN THE UNITED STATES OF AMERICA.

I.

The American school-system is an organic or historic growth, having its origin in attempts made to supply social and political needs.

II.

By the Constitution of the United States, no powers are vested in the central Government of the nation, unless the same relate immediately to the support and defense of the whole people, to their intercourse with foreign powers, or to the subordination of the several States composing the Union. Military education for the Army and Navy only has been directly provided for by the national Government; and the further action in aid of education has been limited to endowments in the form of land-grants to the several States, or portions thereof, for the purpose of providing a fund for the support of common schools or to found colleges for the promotion of scientific agriculture and the mechanic arts. Universities also have been endowed by the United States Government in all the new States since the Northwest Territory was organized in 1787. Recently, (in 1867,) a Bureau of Education has been established at the seat of Government and a national Commissioner appointed, who collects statistics and disseminates valuable information relating to all educational subjects. To the several States individually is left, for the most part, the local administration of justice, as well as the establishment of public agencies for the well-being of the civil and social community in its industrial, economical, social, and spiritual aspects.

III.

The general form of the national Government is largely copied in the civil organization of the particular States, and no powers or functions of an administrative character are ordinarily exercised by the State as a whole which concern only the particular interests and well-being of the subordinate organizations or corporations into which

the State is divided for judicial and municipal purposes; but the State usually vests these local powers and functions in the corporations themselves, such as counties, townships, and cities. The power of the State over these local corporations is complete; but they are generally allowed large legislative and administrative powers of a purely local character, while the State ordinarily confines its action and legislation to matters in which the people of the whole State are interested.

IV.

Citizenship in the nation is defined by Articles XIV and XV of Amendments to the Constitution, and is uniform, including every native and all naturalized persons. The right of voting and holding office is not inherent in citizenship, but is given to such as the States or the General Government determine, except that neither race nor color can be allowed as a test. Each State-constitution defines the qualifications necessary for the exercise of the political functions of holding office in the civil government and electing the citizens who are to fill such offices. The State, in its entire existence, is a reflex of the people thus defined as its electors. In their hands collectively is vested the ultimate responsibility for all the power which is expressed through the organism of the State, or, less directly, through the nation itself. Upon the several States individually, in which is vested the power of defining the qualifications of the electors who choose by ballot the representatives that make and execute the laws of the land, rests the responsibility of making provision for the education of those charged with the primary political functions. This responsibility has been generally recognized in the establishment, by legislative enactment, of a system of free common schools, supported in part by State-school-funds accumulated from national grants of lands and from appropriations made from the State-revenue, and in part by local taxation or assessment made upon those directly benefited by the schools themselves. The local direction and management of the schools are left to the municipalities or to the local corporate bodies organized for the special purpose, and a general supervision is reserved to itself by the State. In some States, compulsory educational laws have been passed; not, however, requiring those who are taught in other ways to resort to the public schools.

The State arranges the school-system and designates the various kinds of schools to be supported and managed by the public authorities and sometimes prescribes more or less of the branches of knowledge to be taught; provides how districts may be created, divided, or consolidated with others and how moneys may be raised by or for

them; prescribes their organization, officers and their powers, and the time and manner of filling and vacating offices and the functions of each officer; prescribes the school-age and conditions of attendance; and provides in some cases for the investment and application of the school-funds derived from the General Government. The local municipalities organize school-districts under State-laws, elect school-officers, and levy and collect taxes for school-purposes. The local school-officers examine, appoint, and fix the salaries of teachers when not otherwise done, build school-houses, procure school-supplies, arrange courses of study, prescribe the rules and regulations for the government of the schools, and administer the schools.

V.

By the definitions before referred to, the privilege of political participation in choosing those who administer the government of the country is conferred upon the people at large, with certain general limitations as to sex and age and certain specific limitations regarding the naturalization of aliens (and, until recently, in some States, regarding race or color) or the possession of property or intelligence, &c. The general participation of all the people in the primary political functions of election, together with the almost complete localization of self-government by local administration, renders necessary the education of all, without distinction of sex, social rank, wealth, or natural abilities. This position is generally recognized in theory and practice.

VI.

In proportion to its degree of localization, the administration of the government becomes charged with the interests of civil society, and thus directly concerned in the creation and distribution of wealth and the personal well-being of the individual in the community. The national Government and the State-governments regard education as a proper subject for legislation, on the ground of the necessity of educated intelligence among a people that is to furnish *law-abiding citizens*, well versed in the laws they are to obey, and likewise *law-making citizens*, well versed in the social, historic, and political conditions which give occasion to new laws and shape their provisions. But the municipal or local corporations, in which are vested the direct control and management of educational institutions and the collection and disbursement of the funds necessary for their support, regard education in its social and economic aspects as well as in the more general one of its political function. Hence, all communities, in their

local capacity, exceed the limits prescribed by the State in their provisions for popular education, and they do this in the ratio of their grade of advancement in wealth and social culture. The productive industry of the community is known to have a direct relation to the diffusion of educated intelligence therein.

VII.

The idea of the state and the idea of civil society—the former the idea of the actualization of justice and the latter that of the supply of human wants and necessities through the creation and distribution of wealth—conspire, by general consent, in the production of the American system of public education; and, to its maintenance and support, the property of the community is made to contribute by taxation. Both the preservation of property by the actualization of justice and the increase of property by productive industry are directly conditioned, in a republic, upon the educated intelligence of the people. This is so, especially in that species of incorporeal property of the nature of franchises, such as constitute the basis of those corporate combinations formed for the promotion of manufactures and commerce, the creation of transit-facilities, and the diffusion of information, (patent-rights, charters for railroads, canals, telegraphs, banks of issue, insurance-companies, &c.) These franchises, vested in corporations, incite to the production of wealth to an extraordinary degree, and at the same time make such a demand upon the community for directive intelligence that it may be said that the modern industrial community cannot exist without free popular education carried out in a system of schools ascending from the primary grade to the university. And without a free development of productive industry, enabling the individual to accumulate the wealth necessary for the supply of the necessities of life faster than he consumes them, there is not left the leisure requisite to that cultivation of intelligence needed in the theoretical discussion and comprehension of public affairs; and without such occupation of the individual with public affairs, a democracy could exist only in name.

VIII.

The past and present history of the United States exhibits a process of development comprising three stages:

(a) The settlement of new territory by pioneers and the reduction of the wilderness to an agricultural country.

(b) The rise of commercial towns and the creation of transit-facilities in the new regions.

(c) The development of manufacturing centers and the ascendancy of domestic commerce.

In consequence of this constant spectacle of the entire process of founding a civilization and developing it from the rudimentary stages up to the completed type, there is produced a peculiar phase of character in the American people. There is always unlimited opportunity for the individual to build anew his fortunes when disaster has overtaken him in one locality.

As a consequence of the perpetual migration from the older sections of the country to the unoccupied Territories, there are new States in all degrees of formation, and their institutions present earlier phases of realization of the distinctive type than are presented in the mature growth of the system as it exists in the thickly-settled and older States. Thus States are to be found with little or no provision for education, but they are rudimentary forms of the American State, and are adopting, as rapidly as immigration enables them to do so, the type of educational institutions already defined as the result of the American political and social ideas.

IX.

The education of the people in schools is a phase of education lying between the earliest period of family-nurture, which is still a concomitant and powerful auxiliary, on the one hand, and the necessary initiation into the specialties of a vocation in practical life on the other. In America, the peculiarities of civil society and the political organization draw the child out of the influence of family-nurture earlier than is common in other countries. The frequent separation of the younger branches of the family from the old stock renders family-influence less powerful in molding character. The consequence of this is the increased importance of the school in an ethical point of view.

X.

In order to compensate for lack of family-nurture, the school is obliged to lay more stress upon discipline and to make far more prominent the moral phase of education. It is obliged to train the pupil into habits of prompt obedience to his teachers and the practice of self-control in its various forms, in order that he may be prepared for a life wherein there is little police-restraint on the part of the constituted authorities.

XI.

The school-discipline, in its phase of substitute for the family, uses *corrective* punishment, which presupposes a feeble development of the sense of honor in the child. It is mostly corporal punishment. But in the phase wherein the school performs the function of preparing the pupil for the formal government of the state, it uses *retributive* punishment and suspends the pupil from some or all the privileges of the school. In this phase of discipline, a sense of honor is presupposed and strengthened.

XII.

In commercial cities and towns, the tendency preponderates towards forms of punishment founded on the sense of honor and towards the entire disuse of corporal punishment. This object has been successfully accomplished in New York, Chicago, Syracuse, and some other cities. In the schools of the country, where the agricultural interest prevails, the tendency to the family-form of government is marked.

XIII.

A further difference between the discipline of city-schools and that of country-schools is founded partly on the fact that the former schools are usually quite large, assembling from three hundred to fifteen hundred pupils in one building, while the latter have commonly less than fifty pupils. In the former, the large numbers admit of good classification; in the latter, classes are quite small, sometimes containing only a single pupil, and the discipline of combination is consequently feebly developed. The commercial tone prevalent in the city tends to develop, in its schools, quick, alert habits and readiness to combine with others in their tasks. Military precision is required in the maneuvering of classes. Great stress is laid upon (1) punctuality, (2) regularity, (3) attention, and (4) silence, as habits necessary through life for successful combination with one's fellow-men in an industrial and commercial civilization.

XIV.

The course of study is laid down with a view to giving the pupil the readiest and most thorough practical command of those conventionalities of intelligence, those arts and acquirements which are the means of directive power and of further self-education. These preliminary educational accomplishments open at once to the mind of the pupil two opposite directions: (a) the immediate mastery over

the material world, for the purposes of obtaining food, clothing, and shelter directly; (*b*) the initiation into the means of association with one's fellow-men, the world of humanity.

XV.

(*a*) The first theoretical study necessary for the mastery over the material world is arithmetic—the quantification of objects as regards numbers.

In American schools, this is looked upon as of so much importance that more time is given to it than to any other study of the course. Its cultivation of the habit of attention and accuracy is especially valued.

After arithmetic follows geography, in a parallel direction, looking towards natural history. Arithmetic is taught from the first entrance into school, while geography is begun as soon as the pupil can read well.

XVI.

(*b*) The first theoretical study necessary to facilitate combination of man with his fellow-men is reading the printed page. Accordingly, the prevailing custom in American schools is to place a book in the hands of the child when he first enters school and to begin his instruction with teaching him how to read. As soon as he can read, he is able to begin to learn to study books for himself, and thus to acquire stores of knowledge by his own efforts. The art of writing is learned in connection with reading. This culture, in the direction of knowing the feelings, sentiments, and ideas of mankind, is continued throughout the course by a graded series of readers, containing selections of the gems from the literature of the language, both prose and verse. This culture is re-enforced about the fifth year of the course by the study of English grammar, in which, under a thin veil, the pupil learns to discern the categories of the mind and to separate them analytically from modifying surroundings and define them. The common forms of thought and of its expression are thus mastered, and in this way the pupil is to some extent initiated into pure thought and acquires the ability to resolve problems of the material world and of his own life into their radical elements. The study of the history of the United States (and, in most instances, of the national Constitution) carries on this culture by the contemplation of the peculiarities of his nation as exhibited in its historic relations.

XVII.

The cardinal studies of the “common school” are: (1) reading and writing, (2) grammar, (3) arithmetic, (4) geography; the first two

look towards mastery over spiritual combination ; the latter two, over material combination. The common school aims to give the pupil the great arts of receiving and communicating intelligence. Drawing and vocal music are taught quite generally and the rudiments of natural science are taught orally in most city-schools. Declamation of oratorical selections is a favorite exercise and is supposed to fit the youth for public and political life. Debating societies are formed for the same purpose.

XVIII.

The secondary education, carried on in "high schools," "academies," and "seminaries," to the studies of the common school adds : (1) on the side of the theoretical command of material means : (*a*) algebra, geometry, calculus, and some forms of engineering, (surveying, navigation, &c.) ; (*b*) natural philosophy or physics, (*i. e.*, nature quantitatively considered;) (*c*) physical geography or natural history, (nature organically considered.) (2) On the side of the humanities : (*a*) rhetoric, (*b*) English literature, (*c*) Latin, (the basis of the English vocabulary, as regards generalization and reflection as well as social refinement,) (*d*) a modern language, commonly German or French, of which the latter serves the same general purpose as Latin in giving to English-speaking people a readier command, a more intuitive sense of the meaning of the vocabulary of words contributed by the Roman civilization to modern languages, and especially to the English, (whose vocabulary is chiefly Roman, though its grammatical form is Gothic.)

The high schools generally form a portion of the free public-school-system ; the academies and seminaries are generally founded and supported by private enterprise or religious zeal, and are not controlled or interfered with by the State, although many of them are chartered by it and are free from taxation.

XIX.

The highest form of school-education is found in the colleges and universities scattered through the country. some under the control and support of the State, but far the larger number founded and supported by religious denominations or private endowment and tuition-fees from the students. All, or nearly all, of them are chartered by the State, and their property is exempt from taxation. These institutions support one or more of the following courses :

(*a*) Academic course, generally of four years, a continuation of

the secondary education, as herein described, embracing a course in Latin and Greek, French and German, higher mathematics and some of their applications, the general technics of the natural sciences and also of the social and political sciences, belles-lettres and universal history, logic, metaphysics, and moral philosophy; (*b*) a scientific school; (*c*) a law-school; (*d*) a medical school; (*e*) a theological seminary; (*f*) a normal school, (for the training of teachers; this is seldom found except in State-universities, but is usually a separate institution, founded by the State or municipality.)

The academic course is the college-course proper; when united to the others, it forms a "university."

XX.

The general system of instruction lays special emphasis on the use of text-books and the prevalent tendency is towards giving the pupil an initiation into the method of using the printed page in the form of books and periodicals for the purpose of obtaining information from the recorded experience of his fellow-men; but in many schools and systems of schools equal or greater stress is laid upon the practical method of conducting investigations for the purpose of verification and of original discovery.

XXI.

In the Northern States, the colored population (being small in number) usually attends the same schools as the white population. In those States in which the colored people are very numerous, separate schools, with few exceptions, are established for them.

XXII.

In the country, girls and boys attend the same school; in some of the older cities, the sexes are educated together in the primary schools, but separated in the grammar- and high schools. The course of study is generally the same for boys and girls. In cities of most recent growth, the co-education of the sexes prevails from the primary school up through the higher grades, and some colleges admit both sexes. There are, also, colleges established for the education of women alone.

XXIII.

Private schools, supported by individual enterprise or by corporations and religious denominations, are numerous, and the course of study in them is nearly the same as in the public schools, except in

laying more stress upon certain ornamental branches, such as vocal and instrumental music, French, drawing and painting, embroidery, &c.

These schools are more frequently for the separate education of the sexes and for secondary education. Very many academies and seminaries have been founded with a view to supplying the Christian ministry with clergymen. There are some denominations more or less hostile to the public-school-system because of its secularity, and these favor a division of the school-funds so as to allow each denomination to carry on its own school-system.

XXIV.

Sectarian instruction is not given in the public schools. Religious, particularly sectarian, training is accomplished mainly in families and by the several denominations in their Sunday-schools or in special classes that recite their catechisms at stated intervals during the week. It is quite a common practice to open or close the public schools with Bible-reading and prayer. Singing of religious hymns by the entire school is still more common.

XXV.

Free evening-schools are common in cities, to provide means of improvement for adults and for youths who are prevented from attending the day-schools by reason of some useful employment. Special attention is given in them to reading, writing, arithmetic, and to certain industrial studies, such as book-keeping, line-drawing, &c.

XXVI.

Schools for unfortunates, including reform-schools for vicious children, asylums for the blind, insane, deaf and dumb, idiots, and orphans, are usually established by the State-government directly, and less frequently by municipal corporations, and to some extent by religious denominations. In cities, truant-schools, established by the municipal authorities, are becoming common, and seem to be necessary where compulsory-attendance-laws exist.

XXVII.

In the city-schools, female teachers largely preponderate, composing frequently 90 per cent. of the entire corps of teachers. In country-schools, the proportion is very much smaller, but has increased considerably in late years. The pupil, coming directly from home-influence, finds a less abrupt change upon entering the school under

the charge of a female teacher. The female character, being trained by experience in family-supervision to the administration of special details wherein division of labor cannot prevail to any great extent, is eminently fitted to control and manage the education of the child while it is in a state of transition from caprice to rationally-regulated exercise of the will; and the development of individuality is generally more harmonious up to a certain age if the pupil is placed under female teachers. The comparatively small cost of female-labor, also, largely determines its employment in all public schools.

XXVIII.

The ratio of the entire population in school varies from 16 per cent. in some cities down to 5 per cent., or even 3 per cent., in some agricultural sections. City-schools generally hold their sessions daily—from 9 to 12 a. m. and from 1 to 4 p. m., with a recess of a quarter of an hour in each session—for five days in the week, and for about ten months in the year, two months or less being allowed for vacations. In some cities, the plan of half-day-schools for young children has been tried and in many cities such children are not confined to the school-room more than four hours a day. The school-age of the pupil generally begins at 6 years and ends at 16, but in the cooler climates of the northern sections it begins earlier and lasts longer; the school-sessions are usually longer in the colder climates.

XXIX.

The salaries paid teachers indicate somewhat the estimate placed upon their work by the public. For some years there has been a steady increase in salaries. Better qualifications have been brought to the work, and teaching, particularly in cities, has become a regular occupation. Teachers mingle freely in the best social circles and enjoy the respect of the community.

XXX.

Educational journals are published in nearly every State. These journals are sometimes published by the State-superintendent of public instruction, sometimes by committees appointed by State-associations of teachers, and more frequently by individuals. In addition to these periodicals, there are many local educational papers issued by city- or county-teachers' associations, and some of the secular papers have educational departments. The State and city educational reports take rank among the ablest of our public documents.

SIGNATURES.

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THE
NATIONAL BUREAU OF EDUCATION:

ITS HISTORY, WORK, AND LIMITATIONS.

PREPARED UNDER THE DIRECTION OF THE COMMISSIONER
OF EDUCATION,

BY

ALEX. SHIRAS, D. D.

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of the different States; the various modes of providing and disbursing school-funds; the different classes of school-officers and their relative duties; the qualifications required of teachers, the modes of their examination, and the agencies provided for their special training; the best methods of classifying and grading schools, improved plans of school-houses, together with modes of heating and ventilation, &c.—information now obtained only by a few persons and at great expense, but which is of the highest value to all intrusted with the management of schools.

5. By aiding communities and States in the organization of school-systems in which mischievous errors shall be avoided and vital agencies and well-tried improvements be included.

6. By the general diffusion of correct ideas respecting the value of education as a quickener of intellectual activities, as a moral renovator, as a multiplier of industry and a consequent producer of wealth, and, finally, as the strength and shield of civil liberty.

In the opinion of your memorialists; it is not possible to measure the influence which the faithful performance of these duties by a National Bureau would exert upon the cause of education throughout the country, and few persons who have not been intrusted with the management of school-systems can fully realize how wide-spread and urgent is the demand for such assistance. Indeed, the very existence of the association which your memorialists represent is itself positive proof of a demand for a national channel of communication between the school-officers of the different States. Millions of dollars have been thrown away in fruitless experiments, or in stolid plodding, for the want of it.

Your memorialists would also submit that the assistance and encouragement of the General Government are needed to secure the adoption of school-systems throughout the country. An ignorant people have no inward impulse to lead them to self-education. Just where education is most needed, there it is always least appreciated and valued. It is, indeed, a law of educational progress that its impulse and stimulus come from without. Hence it is that Adam Smith and other writers on political economy expressly except education from the operation of the general law of supply and demand. They teach, correctly, that the demand for education must be awakened by external influence and agencies.

This law is illustrated by the fact that entire school-systems, both in this and in other countries, have been lifted up, as it were bodily, by just such influences as a National Bureau of Education would exert upon the schools of the several States; and this, too, without its being invested with any official control of the school-authorities therein. Indeed, the highest value of such a Bureau would be its quickening and informing influence, rather than its authoritative and directive control. The true function of such a Bureau is not to direct officially in the school-affairs in the States, but rather to co-operate with and assist them in the great work of establishing and maintaining systems of public instruction. All experience teaches that the nearer the responsibility of supporting and directing schools is brought to those immediately benefited by them, the greater their vital power and efficiency.

Your memorialists beg permission to suggest one other special duty which should be intrusted to the National Bureau, and which of itself will justify its creation, viz: an investigation of the management and results of the frequent munificent grants of land made by Congress for the promotion of general and special education. It is estimated that these grants, if they had been properly managed, would now present an aggregate educational fund of about five hundred millions of dollars. If your memorialists are not misinformed, Congress has no official information whatever respecting the manner in which these trusts have been managed.

In conclusion, your memorialists beg leave to express their earnest belief that universal education, next to universal liberty, is a matter of deep national concern. Our experiment of republican institutions is not upon the scale of a petty municipality or state, but it covers half a continent and embraces peoples of widely diverse interests and conditions, but who are to continue "one and inseparable." Every condition of our perpetuity and progress as a nation adds emphasis to the remark of Montesquien, that "it is in a republican government that the *whole power of education is required.*"

It is an imperative necessity of the American Republic that the common school be planted on every square mile of its peopled territory and that the instruction therein imparted be carried to the highest point of efficiency. The creation of a Bureau of Education by Congress would be a practical recognition of this great truth. It would impart to the cause of education a dignity and importance which would surely widen its influence and enhance its success.

All of which is respectfully submitted.

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Secretary of State-Board of Education, Vermont.

WASHINGTON, D. C., February 10, 1866.

The above memorial was presented in the House of Representatives by General Garfield, February 14, 1866, with a bill for the establishment of a National Bureau on essentially the basis the school-superintendents had proposed. Memorial and bill were both referred to a committee from seven of the States.* On the 15th of June following the bill was reported back from the committee, with an amendment in the nature of a substitute, providing for the creation of a *department* of education, instead of the *bureau* originally proposed. Thus altered, it was put upon its passage, and, after some frank opposition on one side and very able advocacy on the other, it received, June 19, 80 votes in favor to 44 against it. In the Senate it was referred to the Committee on the Judiciary,† with a view to determining whether there were any legal or constitutional obstacles to the approval of it. This committee, after holding it till the winter-session, reported it back without amendment and with a recommendation that it pass; and, having been discussed, February 26, 1867, on a motion to restore the title of Bureau, it went through, without division, on the 1st of March, receiving on the next day the approval of the President.

The person selected as the first incumbent of the office of Commissioner of Education was Hon. Henry Barnard, LL. D., of Connecticut, distinguished for his labors on behalf of education in his native State, for five years commissioner of public schools in Rhode Island, for some time chancellor of the University of Wisconsin, and also eminent for his efforts in behalf of educa-

* The committee of Representatives consisted of Messrs. Garfield of Ohio, Patterson of New Hampshire, Boutwell of Massachusetts, Donnelly of Minnesota, Moulton of Illinois, Goodyear of New York, and Randall of Pennsylvania, Mr. Randall, however, not acting with the others, as he observed on the floor of the House.

† Messrs. Trumbull, Harris, Clark, Poland, Stewart, and Hendricks.

tional literature. He was nominated for the post by President Johnson, March 11, 1867, and confirmed by the Senate March 16. Holding the office for three years, he had the task, at once honorable and arduous, of starting a scheme of operation and of getting the yet rough wheels of the organized machine at work. As he failed to receive the congressional co-operation that was hoped for, the National Superintendents' Association came to his aid, and, in a meeting held at Trenton, N. J., August, 1869, passed, unanimously, the following preamble and resolutions:

Whereas it was in consequence of the earnest and often-repeated recommendation of the State and National Teachers' Associations, and especially as the action taken at the session of the Association of School-Superintendents, held February 6, 1866, in the city of Washington, that Congress finally established the Department of Education; and whereas the more recent action of the Senate and House of Representatives seems to indicate a want of confidence in such a department as a useful agency in the promotion of education: Therefore,

Be it resolved, That this association appoint a committee of three to act in conjunction with a like committee of the National Teachers' Association, with instructions to confer with the authorities at Washington in regard to the best interests of the National Bureau, or Office, of Education.

Resolved, That the joint committee-appointed as above be instructed to represent to Congress that it is the unanimous opinion of the members of this association that such a Department, at the seat of the General Government, clothed with all the powers and having all the facilities contemplated in the law by which it was originally established, would be of almost incalculable utility in collecting and disseminating information for the use of the great multitude of school-officers of every rank, who are now or who may hereafter be concerned in the organization and management of schools and school-systems in scores of States and thousands of cities and towns throughout the length and breadth of a territory which already covers almost a continent.

Resolved, That the said committee be further instructed to urge upon Congress that the causes which have impaired the present usefulness of said Department—whatsoever they may be—be not permitted to weigh against the continuance and liberal support of the Department itself.

The "liberal support" thus asked for was not given, and on the 17th of March, 1870, Dr. Barnard retired and was succeeded by the present Commissioner. He found the Office shorn of honors and emoluments, the original Department having been reduced to a Bureau, the salary of Commissioner cut down from \$4,000 to \$3,000, and the appropriation for the work from \$20,000 to \$6,000, while only two clerks, at \$1,200 each, were employed in collecting from all quarters of the world the information upon school-matters to be circulated throughout all our country. This exceedingly inadequate force he has, with the cordial aid of the President, of the Secretary of the Interior, and of Congress, succeeded in increasing to something nearer an approximation to the work to be performed, though it remains still greatly short of what the wide range of the duties of the Bureau calls for.

II.—AS TO ITS WORK.

The operations of the Bureau are prescribed and indicated by the act of March 2, 1867, to which it owes its being. That act says it shall be established "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in the several States and Territories, and of diffusing such information respecting the organization and management of school-systems and methods of teaching as shall aid the people of the United States in the establishment and maintenance of efficient school-systems, and otherwise promote the cause of education."

The collection of information as to the condition and progress of education in the whole United States is the first branch of the work thus outlined. The field for exploration it presents embraces the thirty-seven States and eleven Territories. To make the exploration thorough, the Bureau must examine every school-law, and mark whatever change or amendment may be made, including the charters of city-boards of education, with their rules and ordinances. It must sift, for things deserving general attention, the reports of every State-, county-, and city-superintendent of the public schools that may be sent to it. It must get at the work not only of the public high schools, but also of the private academies and special preparatory schools. It must look through the annual catalogues and calendars of a long list of colleges and universities; schools of divinity, law, medicine, and science; reformatories, and institutions for the training of the deaf and dumb, the blind, and the feeble-minded—selecting from each what is worthy to be noted in the way of either improvement or defect. And besides all this, it must keep its eyes wide open to observe the growth of libraries, museums, schools of art or industry, and other aids to the proper training of the people; must see what the educational journals say as to school-matters in their several States; must note what may be worth preserving in the utterances at teachers' associations and gatherings of scientific men; and must keep up, with reference to all these things, an incessant correspondence with every portion of the country. In fact, its correspondence reaches, more or less directly, to the 48 States and Territories, to 206 cities, 132 normal schools,* 144 business-colleges, 54 Kindergärten, 1,455 academies, 103 schools especially engaged in preparing pupils for the colleges, 240 institutions for the

* Some of these, normal departments in colleges and other schools.

higher training of young women, 383 colleges and universities, 73 schools of science, 115 of theology, 37 of law, and 98 of medicine; with 585 libraries, 26 art-museums, 53 museums of natural history, 40 institutions for the instruction of deaf mutes, 28 for the blind, 9 for the feeble-minded, 400 for orphans, and 45 for the reformation of misguided youth. The list of institutions in correspondence with the Bureau, already over 4,000, is steadily increasing, and must increase, with the growth of population and of schools, to fully 5,000, while that of individual correspondents, now much over 8,000, must soon reach a far greater number. The returns thus made to it, of perfectly free will, on education, exceed considerably what were gathered for the census of 1870 by an army of house-visitant officials, armed with authority for requiring answers to their questions.

The "diffusion" of the information thus collected, to "aid the people in the establishment and maintenance of efficient school-systems and otherwise promote the cause of education," is the second branch of the work to be performed. The language of the law, however, here, "such information as shall aid," widens the field of research considerably; sends the Bureau to the study of school-systems elsewhere prevalent; and induces inquiry as to the ministries of instruction in the several European states, as to the useful suggestions in foreign educational reports and journals, and as to the systems of training in the universities, gymnasia, real-schools, schools of architecture and drawing, and the various institutions for primary education in every civilized community or state, that whatever is peculiar or excellent in each may be collected, with a view to the assistance of our educators in their work.

All this, with the educational collections from our country, is presented by the Bureau: (1) In the form of annual Reports, each giving abstracts of the various classes of instruction, (such as primary, secondary, superior, professional and special,) with lists and statistics of all noticeable institutions and estimates of progress or retreat in various lines; (2) in occasional Circulars of Information, of which twenty have been published up to 1875, besides others of a closely kindred character, not so designated; and (3) in written answers to inquiries on school-matters addressed to the Commissioner, from a great variety of sources, both in this country and abroad.

The amount of intelligence conveyed by these means with respect to educational systems, school-laws, and important in-

stitutions, is such as has never previously been made generally accessible in the United States; such as no agency belonging merely to a single State could possibly have gathered and such as private persons could not have obtained, without vast labor and a great expense, except through publications thus brought freely within reach.*

How highly the intelligence thus spread abroad is valued, and how much it has aided in harmonizing the school-systems of the States and improving in new districts the methods of instruction, might be shown by strong testimonies from very many of our educators. The Bureau cannot violate the sanctity of correspondence by printing the kind words written to it by free pens, but lets this brief report respecting it be made to show what is the work laid on it, and what, with comparatively scanty means, has been the measure of success secured in this through the friendly co-operation of school-officers.

The limitations imposed upon the Bureau with reference to its work deserve some notice in a paper of this kind. It is very evident, from the language of the act creating it, that it was not to be left to do what work it pleased. The field in which it is to operate is, in that act, distinctly marked for it, and the kind of work to be done by it within that field is told in words that no one need mistake. To repeat, it is established "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in the several States and Territories, and of diffusing such information * * * as shall aid the people of the United States in the establishment and maintenance of efficient school-systems, and otherwise promote the cause of education."

It may be noted here that no power whatever is given the Bureau but that of gathering and disseminating information upon school-affairs; no lordship over school-officials is conferred; no authority over the school-systems of the States is hinted at; no warrant for coercing even an answer to the questions it may ask in its researches is sought or bestowed. The liberty of research and of publication is declared with authoritative voice, and nothing more. A governmental agency for getting at the facts of education, and so grouping these that all may have the benefit of the instruction they convey, the Bureau stands before the various school-officers to interrogate, but not to rule them. It has to depend upon their courtesy for a reply to its

* A list of these publications may be found in Appendix A.

interrogations, and would be helpless if that courtesy should fail. It is simply a "clearing-house for educational information."

Not even in the Territories, where the legislative power of Congress is supreme, has any authority been given to the Bureau to direct what educational systems shall prevail. They are included with the States in the limitation of its duties above indicated, and to them, as to the States, a hand of help, and not of rule, is all that it is authorized by Congress to extend. It may gather information from them as to the progress and condition of education in their bounds; may distribute among them, for their benefit, such other information as it has from the various sources in its sphere of view; and may comment, if it should please, on the information it conveys, to show its value or its bearing; but there, alike with Territories and with States, its power ends. It cannot force on them its conclusions; cannot require that its suggestions shall be carried out; cannot demand that any defect which it may see in their systems of instruction be amended. Conveyance of intelligence fitted to amend defects is the extent of the authority accorded to it even with reference to education in the Territories.

That this view is correct is evident from several things connected with the first origination of the Bureau, as well as its entire administration.

(1) The spirit of the National Educational Association, from which the action for establishing it emanated, has been from the first opposed to national *control* of education, and in favor only of a moderate national "*aid and comfort*" for it. The whole drift of the action it has taken on this point has been for a perfectly free working of State-systems and against a national compulsory one. The very paper of Mr. White, which formed the basis of the memorial to Congress for the creation of the Bureau, took up the question of the starting of a system of education by the General Government, and pronounced against it as "too wide a departure from the settled educational policy of the country to be seriously entertained." At a succeeding meeting the same year, at Indianapolis, Hon. Oramel Horsford, State-superintendent of public instruction in Michigan, read, with apparently general approval, a paper on "National education," of kindred purport.* At the meeting in Trenton, in 1869, in

* The same view was enunciated and illustrated by the present Commissioner, in an address before the association, at Cleveland, in the summer of 1870.

which, as has been shown, the Bureau was heartily indorsed, a communication from a prominent clerical gentleman of Massachusetts, favoring "A national system of free schools," "met"—says an educational journal of that period—"but little favor." To make its position on the subject perfectly distinct, the association appended to its resolutions approbatory of the Bureau the following one :

Resolved, That, in petitioning Congress for the creation of a Department of Education, in connection with the General Government, this association contemplates neither the establishment of a national system of education nor any interference whatsoever with the systems of education established in the several States.

At the meeting at Saint Louis, August, 1871, when a scheme for establishing, by congressional enactment, systems of public schools in States where they were not existent was being agitated, the final seal was put upon this matter, as far as the association was concerned, by a paper from Hon. J. P. Wickersham, of Pennsylvania, a warm friend of the Bureau, in which a national compulsory system was argued against upon the grounds : (a) that "the establishment of such a system is in opposition to the uniform practice of our National Government ;" (b) that "it is in opposition to the wishes of the founders of the Republic and the leading statesmen of the nation ;" (c) that "it is of doubtful constitutionality," and (d) that "it is in opposition to a sound republican political philosophy."

This apparently uniform spirit of the body out of whose desire for it the Bureau sprung is accepted as one decisive indication of the limitation intended to be put upon its action.

(2) The expressions of the memorial which urged on Congress the formation of the Bureau afford a kindred indication of the limited powers which the memorialists desired that it should be authorized to exercise. Having stated the benefits to be hoped for from its establishment, the paper goes on thus : "The highest value of the Bureau would be its quickening and informing influence, rather than its authoritative and directive control." And again : "The true function of such a Bureau is not to direct officially in the school-affairs in States, but rather to co-operate with and assist them in the great work of establishing and maintaining systems of public instruction."

(3) Concurrent with these recorded ideas of the memorialists are those expressed in Congress by prominent men in favor of the Bureau, at the time of the debates on the question of creating it.

For example, General Garfield, of the House, by whom the bill for it was introduced, said, while strenuously urging the importance of a general training of the people: "The genius of our Government does not allow us to establish a compulsory system of education, as is done in some of the countries of Europe. There are States in this Union which have adopted a compulsory system, and perhaps that is well. It is for each State to determine." Mr. Boutwell, then also in the House, remarked, in kindred strain: "This measure is no invasion of State-rights. It does not seek to control anybody. It does not interfere with the system of education anywhere. It only proposes to furnish the means by which, from a Bureau here, every citizen of every State in this Republic can be informed as to the means of education existing and applied in the most advanced sections of this country and the world."

In the Senate, Mr. Norton said he would not vote for it if it was to control education in the States; but, on the understanding that its office was simply to collect and disseminate information, informing one State of the manner of conducting schools and the school-systems to be found in another, he approved of it and believed it would be beneficial to the country. Mr. Trumbull, in the same honorable body, answering the objection that this was a scheme to take the control of education from the States and give it to the central Government, said "it was not so by any means. It was merely to establish a center for the dissemination of information among the States as to improvements in building school-houses, in methods of imparting instruction, and so on, and for giving a history of the disposition of the vast amount of property which the nation has donated for purposes of education."

These several indications of the bounds within which it must confine itself are taken by the Bureau, with the law which gave it birth, as demonstrating what must be its sphere of action. It is to be an aid to instruction in the States, and not a lordship over it. Information, not direction, is the line of work assigned to it. It may courteously question State-officers and teachers, but may not undertake to rule them. Content with this and not disposed to go a step beyond, it not only can disclaim all thought of intermeddling with State-systems, but also fearlessly appeal to the several school-officers with whom its duties bring it into contact, whether it ever trespasses upon their fields or threatens in the least to turn into a tyranny what was meant to be an aid to them. But, happily, there is no need

for such appeal. The pleasantest relations constantly subsist between it and the educational authorities in all the States. It is in receipt of frequent and most gratifying evidence of their cordially kind feeling and readiness to co-operate with it in its work. In proof of this, citation may be made from freely-published testimonies, without touching private correspondence.

For instance, at the session of the National Educational Association held in Boston, August, 1872, the assembled educators passed a resolution congratulating themselves and the country that the National Bureau of Education was beginning to meet the wants of teachers by pursuing investigations which increased the value of educational statistics and by publishing occasionally, for the benefit of the educators of the country, the rare products of the educational field in this and other regions. They also respectfully recommended that facilities for the publication of its Circulars of Information be increased and that Congress should provide for a larger edition of the annual Report, to be distributed among teachers and school-officers, that they might have each year in the conduct of their work the advantage of its aggregated information drawn from the previous year's experience.

At the session of the department of superintendence of the same association, held in Washington January, 1874, the following resolutions, presented by Messrs. Ruffner of Va., Bicknell of R. I., Hopkins of Ind., Newell of Md., and Jillson of S. C., the committee on aid to education, passed with apparently unanimous approval:

Resolved, That this convention strongly approves the policy hitherto pursued by the Federal Government of leaving the people and local government of each State to manage their own educational affairs without interference, believing that the principle on which this policy is based is as sound educationally as it is politically.

Resolved, That this convention acknowledges the great service done to the cause of education by Congress in establishing and maintaining a Department of Education, similar in principle to those of Agriculture and Statistics, whereby appropriate information from all parts of the world may be gathered, digested, and distributed, and whereby a number of important ends may be subserved in connection with the work of education. It would also acknowledge the very valuable service already done by the Bureau of Education, and would venture to express the hope that its means of usefulness may be increased.

The State Teachers' Association of Missouri, too, at its annual meeting, held in Warrensburg, December, 1873, adopted this resolution:

Resolved, That we recognize the great value of the work of the United States Commissioner of Education, and respectfully ask our legislators and Representatives in Congress to render the Bureau of Education every possible facility for collecting and distributing the important facts and statistics embraced in the circulars and annual Report of the Commissioner.

Hon. W. H. Raffner, State-superintendent of instruction in Virginia, and offerer of the Washington resolutions quoted, makes this further voluntary statement in his report for 1873:

Those who have to deal practically with this matter of State-education know what need there is of some central depot of information, where educational facts from all parts of the world may be gathered, digested, and distributed over the country, as is done by the present Bureau of Education. This is a work too large and costly for any State-office, and yet is important to all. This Bureau is intended to occupy a position on educational matters similar to that occupied in their respective spheres by the Bureaus of Agriculture and of Statistics, and should never be allowed to go beyond this.

And finally, Hon. H. A. M. Henderson, State-superintendent of education in Kentucky, speaks thus in his report for 1874:

I am opposed to any national scheme for popular education, or the creation of any United States Bureau, or Commissioner, who shall be invested with any authority over the superintendents of the separate States. * * * I am not opposed to a Commissioner of Education, to be located at Washington, as at present, whose relations to the subject of popular education shall be those of a general statistician. The annual report he sends out is worth the cost of the Bureau. It has always afforded me pleasure to co-operate with him in his quest for information, and I have received valuable aid through the agency of his Office. *

It is hoped that these showings of the limitations put upon the work of the Bureau and of the confidence reposed in it by State-teachers and State-officers, as administered in strict compliance with these limitations, may help to correct misconceptions, not infrequently apparent, as to possible interference with the independence of State-systems of instruction; for any one may see that such interference is impossible from an agency whose business is just to gather from all quarters educational hints, information, and statistics, and spread these, for the general benefit, by its publications and its correspondence through the country. And that this, and no more, is the duty that is laid on it is indicated clearly, not only by the act which gave it its existence, but also, as has been shown, by the spirit of the great association that suggested it, by the terms of the me-

* While this pamphlet is passing through the press, the following additional testimonials of the appreciation of the Bureau among educators come to hand: (1) That the Massachusetts State Teachers' Association, at its meeting in Boston, December 28-30, 1874, passed, unanimously "a resolution to memorialize Congress in favor of the continuance and liberal support of the National Bureau of Education;" (2) that the New York State Association of School-Commissioners and Superintendents adopted at its session, December 20, the following:

Resolved, That we have noticed with deep regret the apparent want of appreciation, on the part of a large number of Representatives, of the Bureau of Education at Washington, the great value of which we have learned by our individual experience, not as building up a central power in education at the national Capital, which it appears to us inadequate ever to do, but as enabling those engaged in education in the various States to have access to the information necessary to make their work thorough and efficient.

morial which led to the formation of it, and by the expressions in the congressional debate on that formation.

That the Bureau does, besides this, from its being a known organ of the Government, an incidental duty, not included in its special aim, by furnishing to foreign governments and individuals much-needed information as to our school-systems and school-methods, no one will complain of who desires good-neighborhood among the nations.* Our country is honored by being applied to for such information, and the pride of our people in the educational status they have reached would be amply gratified if the Bureau could spread out before them the returns of approval from its many foreign correspondents.

Of the value of such a means of international communication as the Bureau is, an illustration was afforded in the case of the Exposition at Vienna, in 1873. In previous world's fairs the condition of the United States with regard to education had been scarcely touched, from want of any agency to organize the material for exhibition. But at Vienna, through the facilities which this Office was able to furnish from its national position, the educational instrumentalities of the country—public-school-systems, institutions of learning, libraries, and others—were enabled to represent their statistics, methods, apparatus, and literature, so as to secure special recognition, and carried off forty-eight premiums. Of the four grand diplomas of honor given the United States in the educational group, one was bestowed on this Bureau “for distinguished services in the cause of education and for important contributions to the Exposition.”

THE LIBRARY OF THE BUREAU.

Full justice could not be done to the Bureau without some notice of this department of its work. As one of the fruits of its researches into educational facts and statistics, a library of almost unexampled richness in its special line has gradually grown up beneath its hands. This is, in part, composed of

* In the debate upon the organizing act, in 1867, Senator Yates gave as one reason for voting to create the Bureau, that it would meet a want in this direction, a foreign friend of education having complained to him of the difficulty he experienced in finding any central source of information on such points. He could gather up reports from different States, but any connected view of education in the whole United States was not accessible. In fact, as was said by Hon. G. F. Hoar, upon the floor of Congress, the only respectable accounts of education in this country then published had been prepared by foreign governments.

choice collections bearing on the history and art of education in this country and abroad; in part, of the accumulations made in the process of annual examination into the condition of public-school-instruction, the state of academies and colleges, and the rise and work of professional and special schools.

For one element of it, there come in, each year, the educational journals of the country, the reports on education from our various States and Territories—including not only those of State-superintendents of instruction, but also those of the superintendents in the counties—and those of the cities and large towns. To these are added the annual reports of high schools, union-schools, preparatory schools, and normal schools; of young ladies' seminaries, business-colleges, agricultural colleges, classical and scientific colleges and universities, with the schools of science, law, medicine, and theology standing connected with these, or apart; while to close the list come schools for orphans, for deaf mutes, for the blind, for youth that need to be reformed as well as taught, for the instruction of a force of well-trained nurses, of apprentices for our marine, and of officers for the Army and Navy of our Government. Collections of school-laws go to fill up the list and aid in the investigation of systems of instruction; while prominent publishers of educational works send in their specimens to show what improvements in the means of teaching are continually going forward.

All these collections are, as fast as time and means permit, so bound, classified, and properly arranged as to be immediately available for any line of educational research to be attempted, whether it refer to the forms of State- and city-systems of instruction or to the condition of academic, collegiate, professional, or special training in any recent period or year.

For another element there are full sets of reports on education from Great Britain and Ireland, Germany, France, Austria, Belgium, Holland, Switzerland, Italy, Sweden and Norway, the British Colonies, Brazil, and the Argentine Republic, while pretty full, though not complete, ones are on hand from Denmark, Spain, Portugal, Greece, Turkey, Russia, Egypt, Chili, Mexico, Ecuador, and the United States of Colombia.

Both these two elements come in with little other expense to the Bureau than the exchange of its own publications with the governments, officers, institutions, and publishing-houses from which they are received.

Then, as a third element, there are, besides encyclopedias for

reference, as large collections as small funds will admit of works relating, in a variety of ways, to the education and civilization of the world, the progress of knowledge, the development of art, and the condition of literature and science.

Works bearing directly on education as a science or an art form a fourth element. Among these may be enumerated: (1) Works of all the prominent German writers on these themes, such as Comenius, Basedow, Pestalozzi, Niemeier, Beneke, Denzel, Graser, Schleiermacher, Herbart, Diesterweg, &c.; (2) all the important works on the history of education in Europe, as well as in the United States; (3) a large number of German, French, and English treatises on educational questions; (4) the chief German, British, Austrian, French, Swiss, and Italian educational periodicals; (5) the many works on special topics in the line of education that have grown out of the controversies, the needs, and the desire for information of the last few years in our own country and abroad.

Those who have had opportunities for comparison of this with kindred libraries abroad do not hesitate to say that, great as are the means for such collections under the monarchies of Europe, this of the Bureau of Education is, for the ground it covers and for purposes of practical investigation, superior to any in existence, except, perhaps, one at Vienna. And of course, as its accumulations are continually going forward and its materials more and more systematized for work, its value as a library of reference increases with each added year.

APPENDIX A.

PUBLICATIONS OF THE BUREAU OF EDUCATION.

Under Dr. Barnard.

* Report for 1867-'68.

* Special Report on the District of Columbia.

Under present administration.

* First Annual Report, 1870.†

✓* Second Annual Report, 1871.†

* Third Annual Report, 1872.†

✓* Fourth Annual Report, 1873.‡

✓* August, 1870. Circular respecting illiteracy of 1860; school-room diseases, &c.

- ✓ * July, 1871. Report on the systems of public instruction in Sweden and Norway.
- ✓ November, 1871. Methods of school-discipline.
- ✓ December, 1871. Compulsory education.
- ✓ January, 1872. German and other foreign universities.
- ✓ * February, 1872. Reports on the systems of public instruction in Greece, the Argentine Republic, Chili, and Ecuador, with statistics of Portugal and Japan and an official report on technical education in Italy.
- March, 1872. 1. An inquiry concerning the vital statistics of college graduates.
2. Distribution of college students in 1870-'71.
3. Facts of vital statistics in the United States, with tables and diagrams.
- ✓ April, 1872. The relation of education to labor.
- ✓ June, 1872. Education in the British West Indies.
- July, 1872. The Kindergarten.
- ✓ November, 1872. American education at the International Exposition to be held at Vienna in 1873.
- * 1872. Free-school policy in connection with leading western railways.
- ✓ No. 1, 1873. Historical summary and reports on the systems of public instruction in Spain, Bolivia, Uruguay, and Portugal.
- ✓ No. 2, 1873. Schools in British India.
- ✓ * No. 3, 1873. Account of college-commencements, for the summer of 1873, in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.
- ✓ No. 4, 1873. Lists of publications by members of certain college-faculties and learned societies in the United States.
- ✓ No. 5, 1873. Account of college-commencements during 1873 in the Western and Southern States.
- ✓ No. 1, 1874. Proceedings of the department of superintendence of the National Teachers' Association.
- ✓ No. 2, 1874. Drawing in public schools: the present relation of art to education in the United States.
- ✓ No. 3, 1874. History of secondary instruction in Germany.
1874. Contributions to the annals of medical progress and medical education in the United States before and during the War of Independence.
- ✓ 1874. A statement of the theory of education in the United States of America, as approved by many leading educators.

* Bureau's supply exhausted.

† Of each of these, 20,000 copies were ordered by Congress and 5,000 put at the disposal of the Bureau.

‡ As to this, the congressional action was: The House had voted for 20,000 copies of this Report, and when the Senate, on economical grounds, made it 5,000, the House, adhering to its first vote, called for a committee of conference, and only yielded after much effort to secure the larger number. The following is the resolution finally adopted: "Resolved, That there be printed, of the Report of the Commissioner of Education for 1873, 5,000 copies, of which 2,500 copies shall be for the use of the Commissioner and 2,500 shall be for sale by the Congressional Printer at the cost of paper and press-work, with an addition of 10 per cent." This makes the price to purchasers only 68 cents for a volume of 1,048 pages, the postage on which is, under the new law, but 10 cents.

THE
INTERNATIONAL CONFERENCE ON EDUCATION

HELD AT

PHILADELPHIA, JULY 17 AND 18,

IN CONNECTION WITH THE

INTERNATIONAL EXHIBITION OF 1876.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1877.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., April 3, 1877.

SIR: The International Educational Conference, held in connection with the International Exhibition at Philadelphia last summer, passed the following resolution:

Resolved, That, in the opinion of this conference, it is desirable that there should be held at the next universal exposition an international educational congress, and that the United States Commissioner of Education is hereby requested to take such steps, whether by correspondence with foreign governments or otherwise, as to him shall seem most proper to bring about that result.

It seems most essential, in the execution of the purpose committed to me by the conference, to have printed copies of its proceedings, as the basis of correspondence with foreign powers. The information concerning the state of education in other countries, as it was given informally by the residents of the different countries who were present during the session of the conference, will be of special interest to the educators of this country.

I therefore recommend that the report of the proceedings be published.

I am, sir, very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Approved, and publication ordered.

C. SCHURZ,
Secretary.

[On the evening of June 26, 1876, a number of persons interested in education met by invitation in the judges' pavilion, to consider the project of holding a series of more or less formal conferences upon education during the progress of the Exhibition. Several subsequent meetings were held in the parlors of the Pennsylvania Educational Hall, and many interesting statements were made by both foreign and American educators. Among those who spoke were Dr. Philip da Motta, of Brazil; Professor Meyerberg, of Sweden; Hon. J. H. Smart, superintendent of public instruction for the State of Indiana; Rev. Dr. Jacokes, of Michigan; Hon. J. P. Wickersham, superintendent of public instruction of Pennsylvania; Dr. S. P. May, of the educational department of Ontario, Canada, and others. At these preliminary meetings Dr. J. P. Wickersham, of Pennsylvania, or Dr. J. W. Hoyt, of Wisconsin, usually presided.]

THE INFORMAL INTERNATIONAL CONFERENCE ON EDUCATION.

It will be observed that the following pages, which contain the reports of the daily transactions of the educational conference held in Philadelphia during the progress of the International Exhibition, do not purport to be anything but the verbatim reports of an informal assembly.

Owing to a variety of causes, the formal international conference which had been suggested by the United States Commissioner of Education early in January, 1874, as a desirable feature of the exhibition in 1876, and which had met the approval of many distinguished American and foreign educators, had proved impracticable; consequently no official notice that such a congress was to be held had been sent to foreign governments. It follows that no authorized delegates were appointed by these governments, and that the gentlemen—among them distinguished educators and friends of education from foreign countries—who participated in the proceedings of these conferences were present in their private capacity, attending only as especially invited or as attracted by their interest in the subject of education. This explanatory statement is due to those gentlemen who took part in the proceedings and debates.

Their position was fully understood by their fellow-members of the conference, and also the fact that their statements about the condition of education in their respective countries were in no respect official.

Their presence, however, was warmly welcomed, and added greatly to the interest of the sessions; and while the conference at Philadelphia was not itself, as it had been hoped that it would be, the first world's educational congress, it is believed that it will prove, in accordance with the formal resolution by it adopted, which is printed on the preceding page, the origin of the first international educational congress, to be held during the progress of the world's exposition in Paris in 1878.

All endeavors for advancing man's welfare by increasing his intelligence are directed toward the diffusion of a knowledge of the best methods which have been devised, and a consequent enhancement of the benefits which those methods may secure. In this purpose education is not behind. Central as a cause in its relation to other agencies, like them it encounters limitations of language and intercommunication. Educators, though speaking of the one subject, man, and his divers phases of development, do not use terms by which they can understand each other. Commercial enterprise, in the prosecution of its plans

among all nations, encounters similar difficulties, and seeks to overcome them by much going to and fro and by many conferences, hoping that terms on essential points, or descriptive of the great commodities of trade, may be adopted, with a meaning sufficiently common or universal to render the comparison of prices and quotations trustworthy. Christian statesmanship, inspired by the same motives, seeks in a similar way, by enlarging the scope of international law, to avoid bloodshed. The philosophical student of education feels the force of this lesson. He would draw his arguments from the experience of all people, and accord to all the benefit of their conclusions. This is especially true in our country, where neither precedents nor decrees give direction to affairs, but where their course must follow the average sentiment of the whole people. This feeling, widespread among our teachers and school officers, has exacted of this Office an acquaintance with educational facts wherever education or the lack of it has taught a lesson that may be to their advantage. Speculation upon the topics of human development, though as ever useful in its suggestiveness, is more than in any previous age, perhaps, compelled to come to the test of facts. The demand is not, what is conjectured, but what is the fact.

In the discharge of this duty this Office has come into delightful intercourse with the great centres of organic educational action. The conditions that may improve this intercourse and the great benefits that may result from it have deeply impressed me. With a view to its further promotion, I took the liberty to suggest, in January, 1874, among other objects to be aimed at in connection with our Centennial, that an international educational congress be held. The project was uniformly received with favor.

A statement of the steps which led finally to the conference at Philadelphia will be found in the following pages :

INTERNATIONAL EDUCATIONAL STATISTICS.*

Preliminary to the reports of the proceedings of the daily sessions of the conference, it has been thought important, as bearing directly upon the subject of international educational statistics, to insert here the following free translation of a paper written by Dr. Ficker, imperial counsellor at Vienna, Austria, which is taken from the introduction of an article in Schmid's *Pedagogical Encyclopedia*. The distinguished author is acknowledged to be one of the most eminent statisticians of Europe.

School statistics include an exhibit of the actual state of education, and its results at a certain given moment, with a view of ascertaining the laws which regulate them. The very name, which perhaps had better be "educational statistics," shows the importance as well as the difficulty of the subject, which during the last decade has more than ever before occupied the attention of statisticians.

It may well be asked whether there can be any educational statistics, and it has seemed doubtful whether statisticians, with the means at their command, could successfully enter a field where the exhibit of mere facts would least of all seem sufficient.

* Circular of Information of the Bureau of Education for August, 1870.

Education, however, is not altogether beyond the statistician's reach. Tables are certainly the most important, but not the only, element of his exhibit. He may also give existing facts and results obtained in the form of a brief summary, only it should be borne in mind that he has to deal with a summary of *facts* and the development of *aws*. On no other field of inquiry, perhaps, will he have to weigh each expression so carefully, in order to avoid even the appearance of mixing individual opinions with his exhibit of facts, or of merely coloring them according to his own point of view.

The fact that there are limits beyond which statistics cannot go must not deter the statistician. Even in that part of statistics which occupies itself most with mere figures — financial statistics — there are points which the statistician cannot reach. The mere income and expenditure, the debit and credit of a state, do not fully show its financial capacity; they do not show in how far the property and the income of a nation are placed at the disposal of the government through the patriotism of the people and their sympathy for the government, or by the administrative machinery, and what confidence these two powers enjoy in the great market of the world — which elements are yet required for a just estimate of a country's financial power. Military statistics become unavailing at the point where the spirit animating an army, that most important source of great and glorious deeds, comes into question. Should no attempt be made to give educational statistics, because they also have their limits? because it will be difficult, if not absolutely impossible, to give all the individual methods of instruction, or the free form of scientific activity at a university? Most assuredly not; for even if only attempts are made, the way may be cleared, and the limits of inquiry more clearly defined.

The development of statistics as a science has convinced statisticians that there is only one admissible method of giving facts, viz: the comparative method, the results of which gain all the more trustworthiness the wider the range from which facts have been gathered. The question as to whether there can be any educational statistics naturally leads to the question of the possibility of *international* educational statistics.

It cannot be denied that the best and noblest blossom on the tree of human culture — the development of the intellect and of morals — blooms in every country, on its own ground, and under peculiar conditions. The educational system of a nation bears, therefore, in every country its own distinctive impress, to understand which thoroughly would require a retrospective view as well as a study of the present condition. The same difference observable in the financial, military, or commercial state of nations may also be seen in their different educational systems.

It does not, however, seem impossible to compare the school statistics of different nations. For no other object did the statistical congress meet but to compare the statistics from different states and find a common system of statistics applicable to all. Comparative statistics also devote attention to the peculiar institutions of each nation, and their aim is to fix those expressions of national life which are common to all nations as a lasting result, as something independent of external differences, as the true expression of the eternal laws that govern the life of all nations. If it should prove impossible to find and apply common statistical forms to different nations in those respects where more uniformity exists, international statistics would have to remain an unexplored field for centuries to come. The possibility of international educational statistics, however, is guaranteed, if by nothing else, by the solidarity of nations and states with regard to all the powers of maintaining or destroying a solidarity which no philosopher has as yet been able to argue away.

The way in which education develops itself in a country will be the only sure standard of measuring the intellectual development of its inhabitants. The gathering and exhibiting of the facts which express this development are therefore synonymous with the statistics of a nation's most cherished treasure — its intellectual development. And as there is only *one* true intellectual development, though showing itself in different forms, thus there can also be only *one* way of statistically representing it. Educational statistics must, therefore, besides schools, in the proper sense of the word, also include all other institutions for the promotion of science and art.

International educational statistics must, therefore, have regard to institutions which may exist in one and not in another state, where, it may be, education has not yet reached a sufficiently high degree of development, or where peculiar circumstances prevent the establishment of certain institutions of learning; provided only that such facts form really essential points in the educational system of a nation, for educational statistics are not to be a mere curiosity shop.

Since there is no doubt, then, as to the feasibility of exhibiting the educational statistics of a country, it will much less be doubted that such an exhibit will exercise a beneficial influence on education itself. Here, also, as in so many other respects, it proves true that good statistics are the common property of the whole nation. Napoleon said: "Statistics mean the keeping of an exact account of a nation's affairs, and without such an account there is no safety." And Gœthe said, "I do not know whether figures govern the world, but this I do know, they show *how* it is governed."

Good educational statistics will show the present generation occupied with caring for a future one; they will faithfully depict a nation's hopes and fears connected with this care, and will thereby enable states and individuals to preserve the intellectual heritage of centuries long gone by, and transmit it to the coming generations. Educational statistics alone can show the way out of the bewildering maze of different educational systems. They will be of more than ordinary importance in a state occupied with a reform of its educational system; all such reforms would build on a very unsafe foundation if they had not been preceded and were not constantly accompanied by most exhaustive educational statistics.

INTERNATIONAL STATISTICAL CONGRESSES.

As pertinent to the article of Dr. Ficker, from which the preceding citations were made, there is subjoined a brief account of the consideration which the various international statistical congresses have bestowed on the subject of educational statistics.

The first congress met at Brussels, in 1853. The subject of school statistics came up too late to be seriously discussed. The second congress met at Paris, in 1855; the programme for educational statistics was referred to the next meeting, and only a schedule for school statistics in larger cities recommended for general adoption. The third congress met at Vienna, in 1857. Very full schedules for educational statistics, embracing primary, secondary, superior, special, and professional instruction, prepared by Dr. Ficker, were laid before the congress and almost unanimously recommended. Most of the European states adopted these schedules to a greater or less degree. The fourth congress, which met in London, in 1860, and the fifth, which met at Berlin, in 1863, did not discuss school statistics, considering that the subject had been exhausted by the results of the congress at Vienna. The sixth congress met at Florence, in 1867; the subject of statistics of schools of the fine arts and music was discussed, and schedules adopted for such schools, as well as for statistics of libraries, archives, museums, &c. The seventh congress met at the Hague, in 1869; the subject of a common system of educational statistics for all the European states was discussed, and Dr. Ficker was charged to prepare comprehensive schedules for international educational statistics to be laid before the next meeting of the congress. The eighth statistical congress met at St. Petersburg, in 1872; a paper was presented on American educational statistics.

The informal nature of these conferences, precluding for the most part any possibility of elaborate preparation by those who participated in the proceedings or took part in the extempore debates, should be borne in mind by the reader, as well as the fact that it has been no part of the purpose of this report to test the statements so made by comparison with official educational reports of the various governments.

FIRST SESSION.

JUDGES' PAVILION, CENTENNIAL GROUNDS,
Philadelphia, Pa., July 17, 1876—3 p. m.

The international educational conference convened at 3 o'clock p. m., Monday, July 17, 1876, in the judges' pavilion.

Commissioner EATON said that, the hour for the assembling of this conference having arrived, as chairman of the committee on organization, he was instructed to call the body to order. He then called upon Rev. S. S. Laws, D. D., president of the University of Missouri, to open with prayer.

At the conclusion of the prayer Commissioner Eaton read the names of the gentlemen nominated by the committee on organization to act as officers, viz:

President.—Sir Redmond Barry, of Australia.

Vice-Presidents.—Hon. William F. Phelps, president of the National Educational Association; Hon. J. P. Wickersham, State superintendent of education for Pennsylvania; Dr. Philip da Motta, of Brazil; Hon. J. George Hodgins, of Canada; Hon. Fujimaro Tanaka, of Japan; Sir William Thompson, of England; Mr. G. Videla Dorna, of the Argentine Republic; Hon. H. R. Hitchcock, of the Hawaiian Islands; Prof. C. J. Meyerberg, of Sweden.

Secretaries.—Dr. Charles Warren, chief clerk, and Prof. C. H. Pluggé, translator, of the Bureau of Education.

Stenographer.—Mr. C. A. Spofford, of the Bureau of Education.

After reading the list of officers, Commissioner Eaton said that, in the absence of the president, Sir Edmund Barry, he would request one of the American vice-presidents, Dr. Phelps, president of the National Educational Association, to take the chair.

Dr. PHELPS then took the chair, and said, as had already been announced, that in the absence of the distinguished gentleman who had been invited to preside over this congress, he was called upon to act until his arrival. He wished, briefly, to congratulate the conference upon the assembling in this spot of the first international educational congress ever convened in this country. That its deliberations would be fraught with the deepest interest to us as American educators, and also prove of great benefit to our foreign co-laborers as well as ourselves, he had not the slightest doubt. We desire, as the educators of the youngest nation in existence, to learn from those who are older, and who by their experience have gathered those rich fruits of wisdom which grow in this field. He thanked the conference for calling him to preside in this place, even temporarily. He said he would not occupy time with any extended remarks, but would call upon Hon. John Eaton, Commissioner of Education, to state the purpose of the conference.

Commissioner EATON said many were aware that the educators in the United States have been anxious since the prospect of this exhibition

was before them that education should receive a new impulse; and, while they desired an exhibition as perfect as possible from our own and from foreign countries, they also desired that the educators gathered here should have opportunities for free conference, and that out of these conferences should not only grow results in the way of papers, discussions, collections, and suggestions, but that there should be organized a permanent international conference to meet periodically on such occasions as might be determined. The first thought of the gentlemen who were discussing this subject was, that it should be a formal congress, embracing perhaps two weeks' work; and correspondence was had in this direction. A report was to be made to a meeting of the Superintendence Department of the National Educational Association expected to be held in Washington last winter. That meeting did not occur; the report was not made, and the whole plan, of course, passed by. But a body of State and city superintendents and other officers of the association met informally in this city in connection with the preparation for the Centennial Exhibition, and the plan was submitted to them. They informally agreed that a committee then organized upon the subject of the exhibition* should go on and make the best of this preparation, seeking to organize an international conference in connection with the National Educational Association meeting appointed for Baltimore in July, which has just closed. When the time for the Baltimore meeting came, we found that quite a number of our foreign friends were so occupied with their duties here connected with the exhibition that it was impossible for them to be present. Moreover, none of them had any directions from his government to participate in an international educational congress. It was then decided that those who could on their own responsibility and without preparation participate with us in these conferences, should be invited to do so; and that an attempt should be made to organize, in a most informal way, an international meeting here if a sufficient number would agree to come forward and coöperate.

It was believed that a sufficient number of pledges were had; and we are here as the result.

The circumstances, the conditions, the objects of our assemblage need no extended announcement or description. Our purpose is that these hours shall be hours of work—work, not on the machinery of the meetings, the selection of officers, the preparation of rules, but work in the consideration of the great problems of education; and with a view to carrying out that desire as thus expressed this programme has been prepared. The committee is authorized to announce that foreign and

* This committee consisted of the following gentlemen: Hon. John Eaton, United States Commissioner of Education; Hon. John D. Philbrick, superintendent Boston public schools; Hon. J. P. Wickersham, State superintendent of public instruction, Pennsylvania; Hon. W. H. Ruffner, State superintendent of public instruction, Virginia; Hon. Alonzo Abernethy, State superintendent of public instruction, Iowa.

American gentlemen will take part in the exercises to-morrow and on future occasions.

It was useless to prepare a programme of names of persons who could not be here; and on account of the absence both of foreign and American educators, and in the uncertainty as to who will be present at any particular session, it was thought advisable to print simply a schedule of the topics which have been selected for discussion, leaving the names of the speakers who will take part in the formal debate of the succeeding session to be announced at the close of each meeting.*

* The following schedule was printed as a preliminary announcement: An international educational conference will be held in the hall of the judges' pavilion on the grounds of the International Centennial Exhibition, Philadelphia. The first session will open on Monday, July 17, at 3 p. m.

1. Opening exercises.

2. Topic: Courses of study.

First speaker, Dr. W. T. Harris, superintendent city schools, St. Louis, Mo.

Second speaker, Dr. da Motta, of Brazil.

3. Volunteer speeches.

Further announcements of topics and speakers will be made as promptly as possible. The following additional topics have been selected for consideration:

1. Methods of instruction.

A. Elementary.

B. Secondary.

C. Superior.

2. Supervision of instruction.

3. Pedagogical museums or cabinets.

4. Statistics of education.

5. Technical education.

6. The teacher in different countries: preparation, status, salary, and tenure of office.

7. Kindergärten, Crèches, elementary instruction.

8. University and professional education.

9. Compulsory education.

10. Consideration of the organization of an international educational congress.

11. Woman in education.

All educators and persons interested in education are cordially invited to attend the sessions of the conferences. The committee in charge of the organization invites the fullest and freest suggestion and coöperation on the part of the friends of education as to topics and speakers.

It has been found necessary to adapt the conduct of the conferences to the circumstances under which they are held. Topics will be announced and two speakers from different countries will introduce the discussion, after which the subject will be open for general debate.

The opening speeches will not exceed thirty minutes; voluntary speakers will be limited to five minutes, except by unanimous consent of the conference, when the time of any speaker may be extended to ten minutes.

It will be more convenient if the discussions can be held in the English language, but if any speaker desires to use any other language, arrangements will be made for translation on due notice. In view of these and other circumstances, those proposing to volunteer in the debates are desired, when convenient, to give notice of their intention to some member of the committee at least as early as at the previous meeting.

It is hoped that by compliance with this suggestion a full report of each address can be obtained, and publication of the entire proceedings effected.

The committee are extremely desirous that, after the designa speakers have expressed their views, every moment which remains sh be occupied by members on questions before the conference.

We hope that these conferences, informal as they are, will thus made of interest and value to educators; for while we recognize that fact this magnificent exhibition, with all its countless treasures of dustry and art, is in itself but the result of the power and marvell adaptability of education, we also see that there is here presented exceptional opportunity for the study of the appliances and methods education as a technical science; and, further, that the coming togeth at this time here in Philadelphia of so many distinguished educators from our own and foreign lands gives to each of us, as educators, opportunity for obtaining the results of wide observation and experier in the varied methods and systems of education throughout the wor which is not likely soon to recur and ought not to pass unimproved.

We hope, then, that to the interests of education in the United Stat as to those of other arts and industries, lasting advantages may ens from the opportunities of this Centennial Exhibition, and we hope l means of these daily sessions, in informal conference, to secure valuab and enduring results.

The chairman then announced that the first paper to be presented the conference was on "Courses of Study," by Dr. W. T. Harris, St. Louis, who was then introduced.

Dr. Harris said that he had been requested by the managers of th organization of the present body to read the following report prepar by a committee for the National Educational Association on the subje of

COURSES OF STUDY.

As chairman of a committee appointed to report a course of stu for all grades of schools, from the primary school to the university, I beg leave to submit herewith the results of our deliberations on this important theme.

At the outset, your committee found it necessary to investigate a number of difficult questions, all of which have a practical bearing upon the definition of a course of study, its extent, and the relations of its several parts. In most instances these questions were suggested by real collisions shown to exist between the views held by the expounders of the various educational systems established in this country.

A brief review of these questions is essential as a preliminary introduction to the grounds which have influenced your committee in the recommendations which they venture to make.

1. The first question relates to the proper beginning of a course of study: At what age should the pupil be admitted to school? Upon this depends, in a large measure, the character of the studies and the temper of the discipline in the primary school. It is important here to consider the modifying effects of climate and the nature of parental train-

ing at home. In the northern sections of the country, children may attend school one or two years earlier than in the southern sections. A child may be safely placed in school at the age of five, or even less, in the cooler climates, and assigned the ordinary tasks in reading and arithmetic at once; while in warm climates he must begin school at six or seven years of age, or if earlier, his tasks must be of a less severe character and not so prolonged.

To some of your committee the Kindergarten has commended itself as a desirable beginning of the primary course. At the age of five years, possibly at four, the child may be brought under its training. The principal objects aimed at in the Kindergarten course of instruction are, (1) Skill in the recognition and production of forms. The hand and eye are disciplined in the most effective manner by the several occupations of cutting out shapes in paper, weaving patterns in different colors, perforating card-board, and working pictures in colored threads, construction of geometrical and other figures by means of sticks and softened peas, modelling of designs in clay, ruling paper, and drawing symmetrical figures. (2) The theoretical knowledge of form and number is trained by the use of blocks representing the elementary geometrical solids; counting, the elementary rules of arithmetic, the use of fractions, are taught by means of these blocks. (3) Besides this, the child is taught valuable lessons in manners. He eats his lunch at the table spread in a proper manner, and learns neatness, cleanliness, and the conventional etiquette that marks polite behavior at meals. (4) In the games which are played, the imagination is exercised in a lively manner, and the healthful training of the body is secured. The session of the Kindergarten usually lasts for about three hours per day, and may continue for one or two or three years, according to the age of the pupil upon entrance. It is to be remarked that the element of play is not so prominent a characteristic of the Kindergarten as is claimed by some of its advocates. Moreover, the nurture of the child's individuality and originality of character, which is obtained in play, is not to be expected from the play that is permitted in the Kindergarten, so much as in the untrammelled exercise of his faculties when outside of the school room. Play involves a negative exercise of the will in caprice and destructiveness that is essential, no doubt, to the development of the feeling of independence and original power which forms the basis of character. But the school must always direct the pupil's efforts into special rational channels of activity, and hence act as a restraining influence upon the untamed will. The Kindergarten restrains, though in the gentlest manner possible. It furnishes a training nearest approaching that of the family; and is the proper transition from family to school. A year spent in cultivating manual skill, and in the acquirement of a familiar knowledge of geometrical form and numerical computation, as well as a training in polite habits and usages at so early an age, must be a powerful influence in molding the future life of the child.

2. Where the Kindergarten does not precede the ordinary course of primary instruction, the first studies of the course are reading, writing and arithmetic.

The second difficult question that met your committee in their investigation was to determine the precise value of these and other elementary studies both as regards discipline of mind obtained in their acquisition, and their usefulness to the individual in gaining further knowledge. It was necessary to compare one branch of study with another. While some educational writers contend that the art of drawing, or oral lesson in natural science are of more real importance than reading and writing or arithmetic, others contend that the latter studies are of a fundamental character, altogether unique, and not to be compared with the former, for the reason that these studies (reading and arithmetic) are of universal use and value, while such studies as drawing and the natural sciences are special in their character. The arts of reading and writing enable their possessor to participate in the treasured wisdom of the race. Without them he can gain knowledge only through his own senses and the oral tradition of his companions. By the aid of reading and writing he can avail himself of the senses of all mankind in all ages of the world and transmit his own contribution to the race in turn. By arithmetic he is able to measure the quantity of the world about him at least so far as he can reduce it to number. Deprive man of the power of counting and calculating, and the world of things recedes into a vague and uncertain relation to him; so that his power over it diminishes to zero. With numerical calculation he can divide and conquer it; he can rule matter by spiritual might; without this art his relation to the world is that of the savage to his fetish.

In whatever form this question has been viewed by your committee the paramount value of reading, writing, and arithmetic over all other branches in the course of study has been manifest.

But this has not fully decided the question. The most useful studies do not of necessity altogether exclude less useful studies.

3. Here, accordingly, your committee met another difficulty, to wit: how to decide the amount of prominence to be given to industrial branches in comparison with those chiefly productive of theoretical culture.

That which seems to lie nearest to the realm of usefulness to the individual is his special trade or vocation. His culture studies are not so directly useful, but are useful at more points in his life and for a greater period of time. In late years we have seen the whole course of study challenged. The primary school has been called upon to fit the pupil for the actual demands of life. The college and university have been asked to dispense with certain of their disciplinary studies and adopt others of greater immediate usefulness. Less Latin and Greek and more science of nature and man, has been the demand. The course of study has received great modifications; the number of elective branches

has been increased. Still the proper adjustment between culture studies and practical studies does not seem to have been found. Now that education, as an element of national strength, has excited so much attention and become the object of so frequent legislation, we are the more perplexed by this problem. Indeed, there are many problems here.

4. The question of public and private schools meets us first. On the one hand it is contended, in the interest of productive industry, that the public schools, being for the masses who are destined to fill the ranks of common laborers, should give a semi-technical education, and avoid purely disciplinary studies. The latter should be reserved (it is thought) for academies and preparatory schools founded by private enterprise and open to such of the community as can afford to patronize them. This means a division in the course of study, one branch of it tending toward the arts and trades—the education of the laboring classes; the other branch tending toward high culture—“a liberal education,” as it is called. This important question, therefore, met your committee in this shape: Is the best course of study for the future common laborer a part or portion of the longer course of study designed to educate the professional man? Is the complete course of study the same for culture and business and the professions, so that whatever section of it be cut off from the beginning furnishes the best course up to that point, whether regarded as preparatory to a continuation of the course of study, or as a completed course fitting one for business? To settle this point it was essential to consider in detail the nature and effects of such differences in the course of study as had come to exist in our educational systems, and especially the tendency to separate the preparatory course for colleges and universities from that pursued in the common schools.

The course of study as originally planned for our colleges was a continuation of that in the so-called “grammar school,” in which Latin grammar was the most important branch of the curriculum. The common school course was very meagre, and that of the grammar school and college was well enough as a continuation of it. At that time very little development had taken place in the sciences of nature and man; English literature had not yet become a great power among the people; the printed page in the form of the newspaper and magazine had not yet opened to the individual the great possibilities of continuing his theoretic education. What was then a “liberal education” is inferior to a common education now. Although higher education demands only the same disciplinary studies as preparatory to it that it did formerly, merely increasing the amount, and has recognized the modern growth of literature and science and history by additions to the end of its course, in the common school so much has been added to the disciplinary studies as to completely change the course. The branches which initiate the pupil into the sciences of man and nature are better and better provided for year by year. The curriculum is continually

modified so as to adapt it more fully to the wants of the individual of this epoch. But the higher education has yielded far less to the demands of the age. It has succeeded in repelling the collateral information giving studies from its preparatory course, and it admits them only in the form of a supplement at the close of the course.*

The course of the common school tends to take the pupil through the elements of the collateral studies before his preparation for college while the course of the college and its special feeders, the academic and classical schools, does not reach those studies until after five or seven years' apprenticeship in the purely disciplinary studies is completed.

This difference appears most marked in the course of the public school, as contrasted with that of the special preparatory schools. In the district school are taught reading, writing, arithmetic, geography, grammar, and history of the United States. In the course of study in the public high school, we find Latin and Greek, French and German, algebra, geometry, natural philosophy, physical geography, physics, universal history, English literature, and rhetorical work. But a preparation for college usually omits all except the Latin, Greek, and mathematics. Hence the public high school is obliged to provide for a classical course and a general course, if it would continue the common school course and at the same time prepare its pupils for college. The influence of higher education upon the lower is to force the latter to drop the collateral and information giving studies.

Meanwhile the demand of the age upon the college to curtail its disciplinary and culture studies, and to give more prominence to the natural sciences, is met only by the increase of these branches in the latter part of the course, as well as by the establishment of scientific schools separate from the regular philosophical course; when these separate schools require as a condition of admission to them the completion

* The forty-eighth annual report of the president of Harvard College announces certain changes in the requirements for admission to that university which indicate very clearly a perception of the difficulty herein described. A better preparation in English literature, natural science, and modern languages (French or German) was required. Upon this the report remarks as follows:

"In all changes in the preparatory course of study which have been here set forth the single aim of the faculty has been to make that course correspond more nearly with the best possible course of study for young men, up to an average age of eighteen who propose to pursue non-professional studies for four years more. As the learning given in American colleges has been predominantly classical and mathematical, it is not surprising that the proficiency of a candidate in classics and in mathematics has been the point chiefly considered in examinations for admission. That teachers and pupils in preparatory schools should direct their efforts mainly to meeting these specific demands of the colleges, and should subordinate the intrinsic importance of studies to their serviceableness in securing admission to college, is the only result that could be expected. Neither teacher nor pupil could be much blamed, for instance, for practically setting the writing of good Latin above the writing of good English. It is plain that the only remedy for this grave evil is for the colleges to show by the nature of the admission examinations that they will not accept the rudiments of scholarship."

the regular college course, they do not fulfil in a direct manner the popular demand; when they admit pupils without such preparation, they omit the culture and discipline which they claim to be essential to success in the pursuit of higher science.

5. In view of these facts your committee proceed next to consider the question of classical culture. Are Latin and Greek essential to a course of study that shall give thorough discipline to the powers of the mind? What special advantage to culture is derived from the study of Latin and Greek over that derived from the study of modern languages, say French and German? That these ancient languages have no advantage as regards their form or capability of expression, one may convince himself by comparison. But when it is remembered that English speaking peoples derive from a Teutonic source only those words expressive of special and familiar relations and ideas, while for all the fine shades of thought and generalization they resort to the Latin and Greek vocabulary, it will easily be seen how important is a direct knowledge of those tongues to us if we would understand readily the language of thought and express with ease the results of reflection and generalization.

The scientific method prevailing in our time tells us that to know a subject properly we must study it in its history. We must be acquainted with its embryology and growth. In this insight we have also a clew to the nature of the much prized disciplinary value of classic study. The classics of a people include the earlier writings belonging to the period of the evolution of its civilization. A study of its classics places one in possession of the seeds and elementary phases which have expanded and grown into its later life. The civilization not only of the Anglo-Saxon people, but of the Romanic, Teutonic, Slavonic, and Celtic peoples of Europe is a Roman and Greek civilization. Greece and Rome originated the stock of ideas that form the basis of our institutions.

amends for deficiencies in the rudiments of education. The colleges, as the representatives of the value of the study of the classics, should be especially careful not to give plausibility by any act or neglect of theirs to the groundless assumption that the discipline of mind secured by the preliminary classical training must be purchased by the sacrifice of some knowledge which a well-educated young man of eighteen ought to possess. Coöperation on the part of the leading colleges is much needed in enforcing upon teachers, and in enabling them to enforce upon their pupils, the necessity of thorough training in all the elements of a sound education. As soon as those colleges unite in demanding of candidates for admission a thoroughly good training in English no less than in classical subjects, the schools which feed the colleges will in turn be able to exact from the lower schools an efficiency which they now greatly lack. The service which American colleges could thus indirectly render to American education it is difficult to over-estimate. Were a good degree of proficiency in a well constructed course of *English studies* strictly enforced as a condition of admission into our leading colleges, the quality of education received by all pupils in all schools directly or remotely affected by such action would be sensibly improved. Hitherto a too exclusive concern for proper preliminary training in the classics and mathematics has cut off the higher institutions for education in this country from a part of that influence upon the lower which it is both their interest and their duty to exercise.'

The Greek mind explored the domain of theoretic and æsthetic culture and science draws its categories to-day from the Greek language, which art points to Greek literature and Greek sculpture and architecture for perfect models. What culture we have in these directions cannot be well acquired by the individual nor fully comprehended by him without recourse to its original fountains. Rome furnished the organizing form of our civilization, and our jurisprudence and legislation still pronounce their edicts in Roman words; and the form of our institutions in which we live and move and have our being as a civil community—as a State, a municipality, a corporation, a free citizen endowed with rights—is Roman. To know ourselves, to realize our past history, and to make alive within ourselves the consciousness of the development of our civilization, we must for a period come into close contact with the literature in which Greece and Rome portrayed their national life. Language is the clothing of the ideas of a people, a garb woven of poetic phantasies and prose reflection. In it we reach the germinal cell-growth of the ideas of a people. In this respect the study of Latin and Greek furnishes to a European or an American a far higher means of culture than does any modern language. No one modern language is an embryonic type of another, nor does its literature portray the embryonic form of the civilization of another people, even though it may be an “arrested development” of some type of civilization. To study the embryology of the butterfly we must begin with the caterpillar and not with the house fly. So to understand the frog we must study the tadpole rather than the turtle. French and German have their own evolution and their own embryology.

6. Pursuing this thought we come to inquire why it is that language in general should furnish so large a portion of the course of study. The spirit of protest demands, “Why not *things* rather than *words*?” And yet education goes on dealing with *words*! If thought, scientific thought, be the end of culture and education, it is not strange after all that so much is made of the word that expresses it. Things are only transitory phases of processes in nature, the temporary equilibria in the great movement of forces. Science seizes the eternal laws or forms of the process itself, and thus deals with what has more validity than the mere things. Words express not things alone but also forces, processes. The verification of the word is therefore not through things alone, but through the synthetic activity of thought. Words stand for more than mere things.

Looked at as an object of knowledge the world is twofold; (a) the world of man—including his realizations in art and literature, in his political and social institutions, in his science and history; (b) the world of nature, including the inorganic aspect, and the organic one of plant and animal. In the study of language we find the threefold world of man as theoretical, practical, and æsthetic. If we go so far as to call the world of man the most important of studies for man, we shall cer-

tainly call language the most important study of the course—the one which gives most clearness of insight to the mind and the most discipline to its powers. But while the perfection of man is the object and end of civilization and consequently of all other culture and education, on the other hand nature is the instrumentality by which this end is achieved. To the savage man nature is master and tyrant; to civilized man nature is servant and thrall. To omit the science of nature from any course of study is to do wrong to the supremacy which man holds by reason of his empire over nature. To slight the science of language in a course of study, is to insult the object of all study itself.

7. The final difficulty which your committee encountered in their investigation is the one of the natural and proper order of development of the topics of the course of study in the mind itself. Such questions were met as these: "Why not get discipline of mind first before taking up collateral branches, such as the natural sciences, the national literature, and history?" "These topics involve the highest reach of the mind to be understood properly." Or the counter position: "Why are not the natural sciences, history, and literature as valuable discipline studies as Latin, Greek, and mathematics? and, if so, why not begin with them in a course of study?"

Upon consideration of this question of the order of topics, your committee is of opinion that each one of the several fields of the objective world of man and nature should be represented at each point in the course of study—nature in its organic and inorganic forms, mind in its theoretical, practical, and æsthetic forms. To those who object to collateral and information studies side by side with the discipline studies it may be said that they lay emphasis on the inorganic phase of nature by the exclusive study of mathematics and physics; and on the theoretical phase of mind, to the exclusion of the practical and æsthetic phases by the too exclusive study of grammatical forms and constructions.

To those who object to the study of topics that are too difficult to be understood in the most comprehensive sense until the close of one's disciplinary course, it is sufficient to point out the fact that every subject has its abstruse side, and that no phase of natural or of human history can be completely comprehended except in and through the world itself. Even the disciplinary studies themselves treat of topics that are not fully explicable until one has mastered the other studies.

The child seizes more vaguely whatever subject he studies than the adult. His active phantasy is his chief organ. Hence the descriptive phases of science can and should be learned early. In secondary education the classifications and relations come properly to be considered; reflection is then the chief mental activity. In the highest phase of education objects are studied as organic wholes—each individual is seen through the perspective of its history.

Without previous familiar acquaintance with a subject obtained by

studying its first or descriptive phases, one gets very little insight in the philosophy of it, even though he listens to the exposition of a Huxley or an Agassiz.

That mathematics and the classic languages are justly regarded as disciplinary studies in a sense that will not apply to the other studies is pretty evident from the reasons already given. Discipline is the process by which the will is purified from the sway of appetite and caprice. In his infantile state, as child or savage, man's will is implicit—no separate from his desires or appetites. A child or savage is a creature of impulse. To become rational he must substitute principle for caprice, moral forms for impulses. The training requisite to emancipate the will and elevate it from the stage of impulse to that of moral activity, must needs possess the following essential characteristics :

(a) It must occupy the pupil with what is remote from the interests of his every-day life. Self-alienation is necessary to self-knowledge ; in order to see our own dwelling in its relations to surrounding objects it is necessary to go out of it and stand at some distance. The atmosphere of the classic people of Greece and Rome furnishes the broad contrast to our every-day life which enables us to discriminate sharply the motives which unite to form our impulses.

(b) Inasmuch as the civilization of those classic peoples is the embryonic form of our own, as has already been pointed out, the student of the classics has the advantage of seeing the universal or regulative forms of his life (the laws, institutions, and usages which define his status as a human being,) in their special forms and applications. He learns more readily the universal by studying it, at first, as a typical instance. The invisible cloak of forms wrapped about his life, invisible because of its general or abstract nature, thus becomes visible to him and he acquires the ability to separate his deed from his impulse by the insertion of general motives. Reflection takes the place of instinct and caprice. By studying that which has no direct and obvious relation to his immediate interests, but which is allied to the general forms of his rational activity, the youth obtains breadth and perspective of practical insight. The disciplined mind makes its purpose a general one, and does not allow caprice (likes and dislikes, weariness of the body, curiosity, love of ease or amusement) to hold sway. Mathematics as the science of the general relations of time and space, the conditions under which the existence of nature is possible—has the same relation to man's physical existence as classic study has to his humane culture.

This mental discipline is not a matter of perseverance and industry simply, so that whoever studies any subject thoroughly will get the same amount of discipline as another, but the object studied must stand related to the student's general and rational forms of life and thought.

Assuming the division already indicated, our course of study will fall under five subdivisions, each of which must be represented at every stage of progress. A careful survey of this ideal standard discovers the

fact that with the exception of the divergence already mentioned between preparatory schools and the public high schools, there is a close conformity to the educational system generally adopted in the country. Were the college or university to require for admission a knowledge of the elements of natural philosophy and physical geography, (the former a compend of physics and the latter of natural history,) universal history, and English literature, and slightly less of Latin and Greek, it would remove the necessity of two courses of study in the high school.

The five subdivisions are :

I. *Inorganic nature*, treated in (a) mathematics, the science of the general form of nature as existing in time and space, and hence as quantitative; (b) physics, molar and molecular, including the science of the contents of nature in their quantitative aspect.

II. *Organic nature or cyclic processes*, treated in natural history and in all natural sciences which have for their object a cyclical process, whether that of life or not; hence, astronomy, meteorology, geology, bótany, and zoölogy, and kindred sciences.

III. *Theoretical man or intellect*, treated indirectly in (a) philology, or the science of the instrument invented for the reception, preservation and communication of thought; treated directly in (b) philosophy, which investigates the universal and necessary conditions of existence or the forms of the mind that appear in logic, psychology, ontology, and other spheres more concrete. The study of grammar is the propædæutic to this field.

IV. *Practical man or will*, treated in (a) civil history, which portrays man's progress in realizing forms of freedom by means of political organization; (b) social and political science, which investigates the evolution of institutions of civil society and their logical basis.

V. *Æsthetical man or phantasy*, as developed in the fine arts, and especially in literature, as the symbolic portrayal of man to himself, the collisions of his real world with his ideal, and the reconciliation of the two.

In mapping out the provinces which shall be investigated, only a small portion of the work of preparing a course of study has been accomplished. It remains to select those branches of study which are to be pursued continuously from year to year throughout the course, and likewise to decide the amount of time to be given to the other branches, as well as their exact order in the course. In this difficult and delicate part of the task it becomes evident that, within certain limits, very much freedom may be allowed to the teacher and pupil, and in fact must be allowed. It is necessary to have each one of the five departments well represented in the course. But a choice may be made, for example, in the department of the study of organic nature, between botany, zoölogy, physiology, and geology, each one of these studies being a fair type of the rest as regards effect on the mind in culture or discipline. It must not be forgotten, moreover, that the age of pupils and the amount and

quality of previous preparation will determine whether the course shall be very full or whether it shall embrace only a few of the representative branches; whether the special branches shall be continued for half a year each or for a whole year.

In the more important branches there should be no option left to the pupil in the high school; for example, all should be required to take Latin, algebra, and geometry, universal history, Constitution of the United States, history of English literature, rhetoricals, natural philosophy and physical geography.

Omitting the phase of physical training, except in so far as the art of drawing secures it in the form of a culture of the hand and eye, a general propædæutic of manual skill, and not including the ground covered by the Kindergarten which would precede, or that of the special trades or professions which would succeed this general course, your committee present the following tabulated scheme for a general course of study from primary school to university:

DISTRICT OR COMMON SCHOOL.

TOPICS RELATING TO NATURE.

Inorganic.—Arithmetic, oral lessons in natural philosophy.

Organic or Cyclic.—Geography, oral lessons in natural history.

TOPICS RELATING TO MAN, OR "THE HUMANITIES."

Theoretical, (Intellect.)—Grammar, (reading, writing, parsing, and analyzing.)

Practical, (Will.)—History, (of United States).

Æsthetical, (Feeling and Phantasy.)—Reading selections from English and American literature, drawing.

HIGH SCHOOL OR PREPARATORY SCHOOL.

TOPICS RELATING TO NATURE.

Inorganic.—Algebra, geometry, plane trigonometry, analytical geometry, natural philosophy, chemistry.

Organic or Cyclic.—Physical geography, astronomy, (descriptive,) botany or zoölogy, physiology.

TOPICS RELATING TO MAN, OR "THE HUMANITIES."

Theoretical, (Intellect.)—Latin, Greek, French or German, mental and moral philosophy.

Practical, (Will.)—History, (universal,) Constitution of the United States.

Æsthetical, (Feeling and Phantasy.)—History of English literature; Shakespeare or some standard author, (one or more whole works read;) rhetoricals, (declamation and composition;) drawing.

COLLEGE OR UNIVERSITY.

TOPICS RELATING TO NATURE.

Inorganic.—Analytical geometry, spherical trigonometry, differential and integral calculus, physics, chemistry, astronomy, (etc., elective.)

Organic or Cyclic.—Anatomy and physiology, botany, zoölogy, meteorology, geology, ethnology, (etc., elective.)

TOPICS RELATING TO MAN, OR "THE HUMANITIES."

Theoretical, (Intellect.)—Latin, Greek, French or German, comparative philology, logic, history of philosophy, Plato or Aristotle, Kant or Hegel, (or a representative of ancient philosophy and also one of modern philosophy.)

Practical, (Will.)—Philosophy of history, political economy and sociology, civil and common law, constitutional history, natural theology, and philosophy of religion.

Æsthetical, (Feeling and Phantasy.)—Philosophy of art, history of literature, rhetoric. The great masters compared in some of their greatest works: Homer, Sophocles, Dante, Shakespeare, Goethe, Phidias, Praxiteles, Skopas, Michael Angelo, Raphael, Mozart, Beethoven, etc.

The president then introduced Dr. Philip da Motta, of the educational department of the Empire of Brazil, who made the following statement regarding the

ORGANIZATION AND SUPERVISION OF SCHOOLS IN BRAZIL.

Education in Brazil is divided into primary, secondary, higher, technical, religious, and special training.

Primary and secondary education in the capital of the empire and higher education in the whole country are under the direct control of the minister of public instruction, while in the provinces each provincial government has jurisdiction over its primary and secondary schools.

Besides the above mentioned chief authorities in the capital and the provinces, there are inspectors, school boards, and district delegates whose duty it is to superintend and inspect public and private primary and secondary institutions of learning. The inspectors general are the presiding officers of the school boards. They have to visit once a year all the schools under their control, and report annually upon the condition of education in their respective districts.

The school boards have control of the special management of schools, and in order to enable them to exercise this successfully two competent practical teachers are appointed members of each board.

The district delegates visit the schools once a month and report upon the condition of education in their districts every three months.

School taxes are unknown in Brazil. The amount needed for educational purposes is annually inserted in the budgets of the general and provincial governments.

Primary instruction is entirely free, even books and clothes being furnished to the children of the poor. There are compulsory school laws for the whole empire; but these laws cannot be enforced in those parts of the country where the people live at great distances from towns and villages.

The law prescribes separate schools for the two sexes and the employment of male teachers for boys and female teachers for girls.

There are two grades of primary instruction, an elementary course and an advanced elementary course. The former comprises reading, writing, the elements of arithmetic, catechism, the elements of grammar, the comparative study of weights and measures, and needle work for girls. The latter comprises the Portuguese language—reading, grammar, and orthography—Catholic doctrine, sacred history, general geography and history, especially that of Brazil; natural sciences,

arithmetic, elements of geometry, land surveying, linear drawing, music, singing, and gymnastics.

The teachers are appointed by the government. They are selected from graduates of normal schools or from the corps of assistant teachers who have taught three years in public schools.

The branches of instruction in the normal schools are the same as prescribed for primary schools, with the addition of pedagogy.

The assistant teachers are selected from the graduates of primary schools, who, after eight years' attendance, have passed their final examination with distinction. These assistant teachers receive a salary of \$15 a month during the first year. After a successful examination they enter the second year with a salary of \$23 a month; and after another examination at the end of the second year, they are appointed for the third year as assistants with a salary of \$30 a month. The last successful examination, at the end of the third year, entitles them to a regular teachership.

If, in case of vacancies, no graduates from normal schools are examined, assistant teachers apply for situations, and a competitive examination takes place, which is open to all who desire to enter the school service, and those candidates who prove of sufficient capacity are appointed. In cities the teachers' salaries are generally higher than in the country. The salaries of city school-teachers of the first grade range from \$700 to \$900 per annum, and those of country school teachers from \$400 to \$600. Teachers receive, besides, a dwelling house and some land, and an extra premium for every pupil they prepare for examination. After twenty-five years' service, and in case of disability at that period, teachers are entitled to a pension equivalent to their whole salary. After ten years' service, a disabled teacher receives a proportion equivalent.

In the capital of the empire the salaries are never less than \$900 a year. Each teacher receives, besides, a good dwelling house and a premium for every pupil above the number of thirty in a school. The premium for boys is 35 cents and that for girls 50 cents per month. After five years' successful work, teachers are appointed for life; and after ten years' service the government grants them the necessary funds to insure their lives, and thus provide for the future of their families. After fifteen years' service their salary is increased 25 per cent., and after twenty-five years' service they are entitled to a pension as stated above. Female teachers have the same privileges and receive the same salaries as male teachers.

Teachers of the second grade receive a salary of \$1,200 a year, and have, besides, the extra privileges allowed teachers of the first grade.

All persons employed in schools are exempt from military service. No teacher is allowed to devote himself to commercial or other pursuits while engaged in school service.

Private teaching is allowed in Brazil, but persons who desire to de-

vote themselves to it have to apply for an authorization from the school boards. Certificates of good character and professional capacity must be presented. Ladies, when married, are obliged to have a permit from their husbands, and single ladies must prove that their parents allow them to teach school.

Graduates from the Imperial College of Dom Pedro II and of foreign higher institutions of learning may teach without further proof of their capacity.

Boarding schools can only be established with the approval of school authorities, who examine the buildings and the plan of studies. All private schools are subject to the inspection of school inspectors, as far as the sanitary and moral condition of schools is concerned.

Public school examinations are held in December of each year by the district delegates and a committee of teachers.

Secondary instruction is given in the Imperial College of Dom Pedro II, in the different provincial lyceums, and in a large number of private schools and colleges throughout the empire.

The Imperial College of Dom Pedro II has a day school and a boarding school. The school fees are very moderate, and the children of teachers and of state officers who have been in service more than ten years are admitted free.

In the boarding school each pupil has to pay \$200 per annum for tuition, board, and books. After the third year students receive clothing, besides, free of charge. Orphans of soldiers who died in the service of the country are admitted free.

The course of studies, which lasts seven years, comprises the following branches: Catholic doctrine, Portuguese, French, English, German, Latin, Greek, ancient and modern geography, sacred and universal history, history of Brazil, arithmetic, algebra, geometry and trigonometry, natural sciences, philosophy, rhetoric and poetry, general literature, drawing, singing, and gymnastics.

The course of studies in the provincial lyceums comprises Portuguese, French, English, Latin, geography, universal history, history of Brazil, arithmetic, algebra, geometry, rhetoric and poetry. In some lyceums, Greek, natural sciences, book-keeping, drawing, and gymnastics are also taught.

The course of studies in private colleges is the same as in the above named institutions.

The following table shows the number of primary and secondary schools in Brazil, the number of pupils, and the expenditure for public education :

Provinces.	No. of primary and secondary schools.	No. of pupils in 1875.	Revenue of the provinces.		Expenditure of the provinces for public education.	
			<i>Milreis.</i>	<i>Dollars, gold.</i>	<i>Milreis.</i>	<i>Dollars, gold.</i>
nazonas	59	1, 679	575, 433\$520	287, 716 76	66, 660\$000	33, 330 00
ará	259	11, 021	1, 533, 670 000	766, 835 00	346, 350 000	173, 175 00
aranhão	183	6, 443	831, 290 000	415, 645 00	125, 102 000	62, 551 00
auby	73	2, 026	346, 526 330	173, 263 16	40, 456 000	20, 228 00
ará	254	10, 861	811, 929 655	405, 964 83	183, 046 666	91, 523 33
o Grande do Norte	152	6, 611	318, 682 026	159, 341 01	96, 350 000	48, 175 00
rahyba	150	3, 906	777, 232 581	388, 616 29	164, 303 333	82, 151 67
rnambuco	502	9, 917	2, 512, 449 516	1, 256, 224 76	478, 904 166	239, 452 08
agôas	230	7, 015	773, 056 051	386, 528 02	137, 300 000	68, 650 00
rgipe	175	5, 651	697, 735 872	348, 867 94	119, 000 000	59, 500 00
hia	425	17, 362	2, 172, 433 000	1, 086, 216 50	363, 500 000	181, 750 00
pirito Sancto	136	2, 216	300, 000 000	150, 000 00	82, 000 000	41, 000 00
o de Janeiro	674	18, 894	4, 221, 505 000	2, 110, 752 50	874, 862 000	437, 431 00
ncipio da Côte	211	17, 279	.....	.....	658, 641 000	329, 320 50
Pauco	634	16, 466	2, 539, 626 683	1, 269, 813 34	397, 979 330	198, 989 66
aná	130	3, 172	727, 985 965	363, 992 98	64, 720 000	32, 360 00
netta Catharina	137	3, 714	311, 492 953	155, 746 48	76, 720 000	38, 360 00
Pedro do Rio Grande do Sul	402	14, 551	1, 702, 100 000	851, 050 00	275, 260 000	137, 630 00
inas Geraes	892	25, 104	1, 651, 640 000	825, 820 00	601, 600 000	300, 800 00
yaz	95	2, 666	147, 787 276	73, 893 64	51, 550 000	25, 775 00
atto Grosso	57	1, 361	167, 000 000	83, 500 00	48, 110 000	24, 055 00
Total	5, 890	187, 915	23, 119, 576 428	11, 559, 788 21	5, 252, 414 495	2, 626, 207 24

Private schools are not included in this enumeration. There are three times as many private schools and pupils as the above table contains, because all the wealthy people have their children educated in private institutions.

The probable number of all the public and private primary and secondary schools in Brazil is 15,000, and the probable number of pupils 50,000.

The ages of primary school pupils average from five to fifteen years, and of secondary school pupils from twelve to eighteen years.

The latest statistics show an increase of 994 schools and of 20,478 pupils. The number of illiterates decreases very rapidly.

Both the general and the provincial governments give special attention to the education of the masses and provide liberally for the establishment and support of schools. As private persons and associations join their efforts with those of the government, education will soon be diffused among all classes of the population.

Compulsory school laws, great increase of the educational budgets, the large donations of wealthy citizens, the establishment of all kinds of institutions of learning for children and adults, rich and poor, and the foundation of free popular libraries and reading rooms—all this proves that there is nothing of higher importance and of greater interest to the Brazilian people than the educational question.

The higher institutions of learning in Brazil are the faculties of law and of medicine, the polytechnic school, and the theological seminaries.

To be admitted to the faculty of law, the candidate has to pass an examination in Portuguese, French, English, Latin, mental philosophy, algebra, arithmetic, geometry, history, geography, rhetoric, and poetry. Preparatory schools are connected with each faculty of law.

The course of legal studies lasts five years, and comprises the following branches :

First year : Natural law and general public law.

Second year : Constitutional law of Brazil, international law, diplomatic law, Roman law, and canonical law.

Third year : Civil law and criminal law.

Fourth year : Civil law continued, commercial law, and comparative study of Brazilian and Roman laws.

Fifth year : Judiciary practice, political economy, and administrative law.

The degree of bachelor of laws, which is conferred upon graduates from the law schools, entitles the recipient to practise the legal profession.

Professors of law schools are appointed by government for life, and receive a salary of \$2,400 a year. They lecture one or two hours a day.

Each faculty of law is under the control of a director and a board of professors.

The staff of professors consists of regular professors and assistants. If vacancies occur, the latter are appointed to regular professorships.

For the admission to the faculties of medicine the same examination is required as for admission to faculties of law.

The medical course lasts six years, and comprises the following branches :

First year : Physics, chemistry, mineralogy, and anatomy.

Second year : Chemistry and anatomy continued, physiology, botany, and zoölogy.

Third year : Anatomy and physiology continued, pathology, and clinics.

Fourth year : Pathology continued, and diseases of females and infants.

Fifth year : Pathology, anatomy, and clinics continued, materia medica, and surgery.

Sixth year : Pharmacy, legal medicine, history of medicine, and clinics.

After the students have passed their final examination successfully they are entitled to practise the medical profession in Brazil.

The pharmaceutical course lasts only three years, and comprises physics, chemistry, mineralogy, botany, materia medica, and pharmacy.

Each faculty of medicine has a chemical laboratory, cabinets of physical apparatus, of natural history and anatomical specimens, and all other necessary appliances used in demonstrating the different subjects of medicine.

The staff of teachers consists of a director and of several regular professors and assistants. The professors receive a salary of \$2,400, and the assistants \$1,200 per annum.

There is no faculty of dentistry in Brazil. Persons who desire to practice it study privately with a dentist, and pass an examination before the faculty of medical science.

Graduates from foreign schools of medicine or dentistry are allowed to practise in Brazil after they have passed an examination before the aforesaid faculty. Persons who were employed as professors at foreign universities may practise without passing any examination.

In the polytechnic schools, the special branches of study are mathematics and natural sciences.

The general course of study, which lasts two years, comprises algebra, logarithms, geometry, trigonometry, physics, meteorology, geometrical and topographical drawing, mechanics, mineralogy, botany, and zoölogy.

The special course of mathematics and physics lasts three years, and comprises a more advanced study of the branches of the general course and practical application of these branches.

The course of physical and natural sciences also comprises three years. The branches of study are botany, zoölogy, drawing, chemistry, mineralogy, geology, agriculture.

The course of study in the theological seminaries comprises the preparatory branches prescribed for all other higher schools and the theological studies which are prescribed by the bishops for all those who aspire to the Catholic priesthood.

To be admitted to any of the four technical schools the student must have been two years in the general course of the polytechnic school.

The course of study in the technical school is, for geographical engineering, two years, and for civil engineering, for the study of mines, arts, and manufactures, three years.

The staff of teachers consists of twenty-six professors and eighteen assistants and special teachers. The professors receive a salary of \$2,400.

Military science is taught in the regimental schools, in the military school of Rio, in the gunnery school of Campo Grande, and in the artillery school. All these institutions are under the control of the war department.

The regimental schools train officers for the different regiments. The branches of study are those of an advanced elementary school, besides the elements of military laws and military duties.

The studies in the military schools are divided into a preparatory and a technical course. The former comprises all the branches of other preparatory schools, and, besides, military drill, fencing, and swimming. The latter comprises algebra, geometry, physics, chemistry, topography, military drill and tactics, strategy, military history, political econ-

omy, administrative law, geographical drawing, mineralogy, geology, botany, civil and military architecture, international law, military law, fencing, riding, gymnastics, and swimming.

The Gunnery School of Campo Grande trains instructors for the different regiments. The course of study comprises the theory and practice of gunnery as prescribed by military authorities.

The artillery school has been established for the training of captains for the artillery corps and for the different fortifications in the empire. The course of study comprises religious instruction, the theory and practice of gunnery, military drill, military book-keeping, fencing, gymnastics, swimming, and music.

The following naval schools are under the control of the navy department:

1. The naval preparatory school, in which the following branches are taught: Portuguese, English, French, geography, history, arithmetic, algebra, and drawing.

2. The naval school on board the Brazilian frigate *Constituição*. Here the following branches are taught: Algebra, trigonometry, naval drill, drawing of landscapes, physics, mathematics, topography, and chemistry.

3. The practical school of naval artillery.

4. The school of naval engineering.

5. The naval artisans' schools.

The school of arts at Rio is supported by private persons and corporations, and receives an annual grant from the government. This school is attended by more than one thousand students, who work during the day, and devote their evenings to the study of art. The teachers of this institution receive no salary.

In the Commercial Institute of Rio the course lasts four years, and comprises the following branches: English, french, german, arithmetic, algebra, geometry, geography, commercial statistics, commercial law, history of commerce, book-keeping, political economy, penmanship, and drawing.

A commercial course is connected with most of the provincial lyceums.

In the Academy of Fine Arts the following course of study is pursued: Geometrical and ornamental drawing, architecture, sculpture, engraving on metal and stone, drawing of figures and landscapes, historical painting, application of mathematics, anatomy and physiology, history of arts, archæology, and music.

The Conservatory of Music is open to both sexes. Instruction in all the different branches is given here by competent teachers.

The Deaf and Dumb Institute is situated in one of the finest parts of the suburbs of the capital, and has at present only 20 inmates, although there are about 12 deaf-mutes to every 1,000 inhabitants of the empire. The deaf-mute pupils are taught the common school branches and afterward different trades.

The Institute for the Blind has at present 35 pupils, who receive a very good education. Music is made a specialty.

Besides the above named schools, there are a great many private institutions for orphans and destitute children of both sexes.

In the Brazilian educational department at the Centennial Exhibition there are several objects exhibited by the literary and technical institutions before described. These exhibits prove that although the empire of Brazil does not hold a first rank among the different countries, she at least deserves great credit for the progress in education in the short period of her existence, and for adopting the best methods of teaching that are known in our days.

At the conclusion of the remarks by Dr. Da Motta, a rising vote was taken, at the suggestion of the chairman, on the question of holding an evening session at 8 o'clock, and it was determined in the affirmative.

Arrangements were made by which special tickets for admission to the grounds in the evening were issued to the participants in the conference.

The chairman stated that the programme next invited voluntary speeches, it being understood that these speeches were to be five minutes in length. He then called upon Dr. J. George Hodgins, deputy minister of education, Ontario, Canada, to open the discussion.

Dr. Hodgins said that he should not trespass beyond the time assigned him. He took occasion, in the first place, to express his gratification at the preparation of the able paper by Dr. Harris. He thought it would aid in the settlement of disputed points in regard to this very question of "courses of study" in the various schools. In our experience, he said, of these matters in Ontario, we have had more or less difficulty in endeavoring to settle some of those questions with which this paper so ably deals. One great obstacle in the settlement of the questions raised in this paper still remains with us and is very hard to overcome. I refer to the overlapping of studies in our schools. I suppose it occurs here, too, in the various States in which the systems of public instruction are not yet matured. We have given a great deal of attention to the elaboration of the course of studies in the primary or elementary schools of our country. Within the last twenty years we have also given a large share of our attention to the subjects and mode of instruction in the high schools and collegiate institutes formerly called grammar schools, *i. e.*, the class of schools which prepares students for the university.

The difficulty with which we have had to deal arises out of the ambition of the parents to get their children out of the primary or elementary school into the high school. It involves somewhat of a social question, and is, therefore, the more embarrassing. Unfortunately, so strong has been the pressure in that direction that the course of instruction in the primary school has had to be shortened and part of it practically abandoned, and the course of instruction in the high school lengthened;

so that, in point of fact, we have what is called the fourth, fifth, and sixth classes in the elementary school almost identical with the primary classes in the high schools. That is just our difficulty. I should like to hear from gentlemen familiar with the subject in this country, whether or not that difficulty has been practically felt here and overcome; and if so, how.

In the first period of the history of our high schools they were almost wholly supported by legislative aid and subsequently by the proceeds of lands set apart for that purpose by "Good King George," a sovereign whom you do not all hold in as high honor as we do. It was to George III that we are indebted for the munificent grants of lands in the province which, at the present moment, sustains the university and high schools of our country. So you see, that while you felt that he dealt with you with a rigorous hand, we know that he dealt with us with a generous one, in providing a munificent endowment for education. I suppose he felt tenderly to his new colony because that country was founded by the refugee royalists, or "united empire loyalists," as we call them, persons who followed the "red-cross flag" and left this country at the close of the revolutionary war and settled in that country. His Majesty George III set apart a large portion of the then surveyed lands of that province, and these lands to-day richly endow the University of the Province of Ontario. A further grant of lands was made for the establishment and maintenance of grammar or high schools; and in 1854 one million acres of land were set apart by the legislature, in Upper and Lower Canada, for the establishment and maintenance of primary schools in these provinces. These lands are under the control of the Crown lands department, while the course of instruction in each class of schools is prescribed by the education department, under the authority of a minister of education.

There is another question not yet settled with us. Many people in our country are opposed to the teaching of the elements of natural philosophy and natural history in the public schools. Those who have most to do with the progress of education, however, are for giving these schools the most liberal course of instruction possible; and I could not but heartily concur in the forcible remarks of the writer of that paper in regard to the necessity of teaching the subjects of natural history and natural science in the public schools. Like yours, our primary schools are, in point of fact, the colleges of the people. The vast mass of our young men never go into a high school or university, and therefore must receive the whole of their literary education in the primary schools of the country. This material fact is too often forgotten by those who would restrict our public schools to the teaching of the three R's. I hold, therefore, that the course of instruction in these schools (while giving due prominence to those subjects) ought to be as comprehensive in its character as possible, and should include not only reading, writing, and arithmetic, but should also provide means by

which boys could develop a taste for such studies as those of the elements of natural science, natural history, and those other subjects which would best fit them for engaging in the battle of life and its practical every-day duties.

Dr. Hodgins said that he hoped to hear from some of the distinguished educators present as to how they practically deal with this question of the overlapping of studies in the elementary and higher schools.

In reply to a question, Dr. Hodgins stated that the school age in his country is from five to sixteen years.

He was also asked to state the difficulty experienced in the province of Ontario in regard to the overlapping of studies, which he did, and added that persons are not disposed to leave their children in the primary school long enough to finish the course, but are anxious to get them into the higher grade of schools before they are, in many cases, fit for it.

The chairman called upon Mr. John Hancock, superintendent of city schools, Dayton, Ohio, to answer the question raised by Dr. Hodgins.

Mr. HANCOCK said he thought that, as far as his knowledge goes, we are not laboring under any difficulty in that direction. Indeed he was quite convinced that what we term "elementary" or "primary" schools in this country are quite as good as the high schools, and stand as high in the favor of the people. It is the endeavor of all good graded schools in this country to make the primary work so thorough, and to so arrange the course of study for those primary schools, that a child leaving them will have all the elements of knowledge he can be expected to acquire within the first eight years of school life, and at the same time be so taught that the high schools can take up the course of study where the elementary schools left it off, and carry it on for another four years. There is no overlapping of the high school back upon the elementary course of instruction, so far as he knew. We have not met that difficulty, for the reason that the feeling that Dr. Hodgins speaks of does not exist. He thought he was quite correct in this. We do have a difficulty, however, in regard to the high school, and that is there is a feeling among a certain class of our people that the high school is a separate institution, and that it ought not to be supported at public expense.

The chairman stated that the question raised by Dr. Hodgins moved him to say to the conference that, should any question arise in the mind of any gentleman, either in the audience or on the floor, he hoped there would be the greatest freedom exercised in interrogating. As he understood the purposes of this conference, it seemed desirable that there should be very free interchange of opinions. The chairman wished further to say that we are quite anxious, now that we have an opportunity, to draw very liberally upon the distinguished gentlemen here from foreign countries, and they must excuse us if we seem to trespass upon their good nature. He then called upon Dr. Meyerberg, who rep-

resents the educational interests of Stockholm, Sweden, to say a few words in reference to the topic under discussion.

Dr. C. J. Meyerberg, superintendent of public schools, Stockholm, Sweden, said that he had not expected to be called upon, but would make a few remarks upon this subject; and he must be excused if what he was now about to say is not relished by the people present. He thought that we are too exacting in our schools in regard to the various grades and courses of study and the requirements of the pupils. In Sweden, and in many other European countries, it has been generally believed that the powers of youth are overstrained; and now as much is expected of girls as of boys. He feared that if girls, who are weaker than boys, were required to take the same studies, sickness would result. He was sorry to say that in Sweden, in other Scandinavian countries, and in Germany, physicians are of opinion that too much is learned in the schools, and that the result of so much mental labor is sickness, both to mind and body. He wished to hear less about the different methods of instruction, and more about how we may educate our children to be sound in body and mind. It is important that the physical as well as the mental powers should be educated, and for that purpose certain exercises are very useful. In Sweden, gymnastics are extensively taught, but not sufficiently so to offset the overstraining of the mind. The true doctrine is *multum, non multa*.

- The chairman then called upon Hon. H. R. HITCHCOCK, inspector general of schools, Hawaiian Islands. That gentleman had prepared the following sketch of education in this country, to be read before the conference, and by request it is inserted here in place of his extemporaneous remarks:

One hundred years ago the Hawaiian Islands were unknown to the civilized world. For 50 years from the date of their discovery by Captain Cook the islanders were at the mercy of western commerce, which sowed broadcast the seeds of dissolution, and planted here and there a germ of material good, while enriching itself at the expense of childish ignorance and innocence. Commerce found them a heathen, disintegrated community, and cared not how long they continued so. Fifty years ago Christianity and civilization undertook the redemption of the race. A corrupt civilization had preceded Christianity many years. While that did not seek for the moral or even temporal elevation of the people, yet it effected the union of the whole archipelago under one controlling, irresponsible head. It was in this state that Christianity found the Hawaiian nation, a state of preparation for a higher destiny.

The field was an exceedingly interesting one. It was entered upon and taken possession of by that ardent and aggressive spirit which has always marked the Anglo-Saxon race. The results of the past fifty years may be thus summed up: A nation of heathen Christianized, civilized, and furnished with a rich and comprehensive written language, the vocabulary of which consists of more than twenty thousand words. It is

no small achievement to have furnished a nation with a written language and literature in less than half a century, even in this nineteenth century of lightning-like results.

During the early history of the national existence, education was in charge of private individuals, notably directed by the American mission sent out to the islands, and reënforced at various periods from Boston. The national government was in the hands of the King and chiefs, and was without a constitution or code of laws, being kept under control through fear of that foreign might which in those early days made right. Foreign gunpowder performed the part of foreign diplomacy.

The feudal system of the Middle Ages was represented in the Hawaiian nation, and the road to the popular mind and heart lay through the heads and hearts of the chiefs. What their chiefs told them to do, that did the commons without questioning; consequently, when the chiefs proclaimed themselves pupils to learn the "pala pala," the whole nation enrolled itself on the school lists. Chiefs and commons, men and women, old and young were fired with enthusiasm to learn, and might be seen sitting together in happy school families, taking their first lessons in the "a-e-i" of their written language. As soon as an adult had mastered the wonderful alphabet of 12 letters, and its combination of easy words and syllables, he was commissioned as a teacher, and proudly stepped forth to instruct his less fortunate or more obtuse neighbors. Thus a little leaven speedily leavened the whole lump, and from that time to the present the Hawaiian nation has placed the education of the people in the van, and has nobly supported its national schools.

The independence of the islands was guaranteed to them in 1843, and the department of education was organized in 1846. It was then that the government assumed the responsibility of educating the youth of the nation. Originally the department of education was under the control of the "minister of public instruction," who was a member of the King's cabinet. Later the title was changed to that of the "president of the board of education," and that officer withdrawn from the cabinet. Until 1861 the offices of minister and president were filled by members of the American mission, and thus it came to pass that the national system of education was built upon the broad basis of American principles. The system was well planned and energetically carried out before the government instituted the bureau of education; and when the common schools were surrendered to it, it strove to make them as efficient as might be with the means at its disposal, and by pursuing as unsectarian a course as possible.

In 1847 the wages of the native teachers of the common schools averaged 12½ cents per diem. The qualifications of the teachers and the requirements of the schools were not of a high order, yet they kept pace with the general needs of the people.

In the year 1865 the department of education was remodeled. While

still retaining the main features of preceding systems, its *personnel* was almost entirely changed.

And this brings me to speak of the Hawaiian educational system as it at present exists. The act of 1865, reconstructing the department, provides for, first, a board of education; secondly, an inspector general; thirdly, district school agents; fourthly, district school boards; and fifthly, teachers. I will consider these separately.

The board of education is composed of five members of the privy council of state, appointed by the King and holding office during his pleasure. One of the five is also designated by the King to act as president of the board, and all serve without pay. "No person in holy orders or minister of religion" is eligible for appointment as president.

By law the board "has entire charge and control of the bureau of public instruction; shall superintend the execution of all laws relating thereto; shall have the power to make its own by-laws, not in contravention of the laws of this kingdom; shall keep regular records of its proceedings, and make a report through its president of the business and transactions of the bureau to the legislature at each of its regular sessions," and, in fine, "shall have full administrative power in everything connected with education conducted at the public expense." The president of the board is required to keep an office at the seat of government, and his duties consist in "presiding at the meetings of the board, and signing all its official documents in order to their validity." He is authorized to employ a clerk to assist him, who is paid a salary by the legislature.

The inspector general is the executive officer of the board, is appointed by them, and holds office during their pleasure. "No minister of religion or person in holy orders" can be appointed to this office. The law requires the board of education to invest the inspector general "with discretionary powers, such as the opening and closing of schools, the holding of competitive examinations for teachers, the granting of certificates to those found competent, and the cancelling of the certificates of those teachers in service who prove untrustworthy. In these, and in all other matters intrusted to him by the board of education, he shall act temporarily with the same authority as though the board itself were acting in the matter;" and upon reporting his actions, the board may approve or not any or all his actions, as it may deem best.

It will be observed here that, in its constitution, the board is placed beyond the influence of political intrigue, and is entirely independent of it; and further, that its two most responsible offices can have no immediate connection with the church in any of its sects. In short; the unsectarian and secular character of the public schools is secured in the constitution of the department of education. The law makes it the special duty of the inspector general of schools "to make frequent tours of the respective islands and districts; to examine into the condition of the schools supported or aided by government; to inform school

officers and teachers of their several duties under the law, and to foster generally an interest in the cause of education."

District school agents are the next grade of officers in the department of education. These are appointed by the board, and may be removed at its pleasure. They act as treasurers of the district school funds and trustees of all school property in their respective districts. *Ex officio* they are the chairmen of their respective district school boards. These boards are composed of the district school agent and district justice, *ex officio*, and of one member chosen annually by the parents or guardians of the pupils attending the common schools. The district boards have the power to appoint teachers to the common schools in their respective districts; but such appointments can only be made from among persons who hold a certificate signed by the inspector general. They can also remove common school teachers, but cannot cancel their certificates, which can only be done by the board of education or the inspector general; "provided always, that any teacher whose certificate has been cancelled by the inspector general may lay his case before the board of education, in the shape of an appeal from the decision of the inspector general." While the school agents exercise the immediate control of the educational interests in their respective districts, and receive their orders directly from the general board or the inspector general, still the remaining two members of the district boards have a general advisory control, the third member appearing as the representative of the interests of parents and guardians.

Teachers of the common schools hold their certificates from the inspector general. No person can teach in any of the common schools who does not hold such a certificate. "Each teacher shall have the power to administer necessary and reasonable punishment upon the pupils of his school, and shall not in any way be punishable for so doing." The pay of all teachers is determined by the board of education, which has recognized the principle that service is to be recompensed according to merit, irrespective of sex. Thus in the common schools women receive the same as men when they perform the same work; and to-day two of the principals of our union schools are ladies, who receive precisely the same salary as was formerly paid to the gentlemen principals.

I now come to consider the school system as carried on by the board of education. The system comprehends—

1. Primary or common schools;
2. Select schools; and
3. The national college.

At the foundation of the Hawaiian school system is laid this law: "It shall be incumbent on all parents, guardians, and adopters of children to send such children, from their sixth to their fifteenth years, to some lawful school, public or private, to be instructed in good morals and elementary learning." The responsible party who fails to use proper diligence to enforce the child's regular attendance at school may be fined

by the proper judicial tribunal not more than \$5, or suffer imprisonment in default of payment of the fine not more than fourteen days. Persistent truancy in a pupil subjects him to a term of imprisonment in the reform school for not less than six months nor more than two years, or to a fine not exceeding \$2, or to imprisonment at hard labor for a term not exceeding ten days.

The common schools are all taught in the Hawaiian language, and by native Hawaiians. The average pay per diem is 50 cents for five hours of teaching. The year is divided into four terms of ten weeks each, with five school days to each week. In the year 1874 the legislature passed an act the first section of which reads: "It shall be lawful for the board of education to include agricultural and industrial pursuits among the branches of instruction taught in the public schools of the kingdom." The five hours of daily schooling are divided into three hours of indoor application to books and two hours of manual labor, chiefly agricultural. Where schools are so situated that profitable manual labor cannot be carried on, the five hours are spent by the pupils at their books. The net profit of the pupils' labor is divided among them and their teachers, who are obliged to give as careful attention to the industrial pursuits of their schools as they are to the intellectual advancement in books. If faithful in the performance of these duties, the teachers receive one-fifth of the net profits of the school labor, the remaining four-fifths being divided among the pupils in proportion to the work they do. As a result of the introduction of the branch of manual labor in the common schools, the sum of \$2,500 was divided among nearly forty schools, representing 1,200 pupils. This sum was the cash result of pupils' labor for one year; and, in addition to it, crops covering twenty-five acres of area were raised and 6,000 feet of substantial stone wall built around the various school premises. The reflex influence upon both teachers and pupils of this outdoor work, when well performed, has been most gratifying; it has increased mental activity. An active mind does not exist in a lazy body.

The average Hawaiian common school teacher exhibits a great deal of human nature. The problem he daily strives to solve is how to render the least amount of service for the greatest amount of wages. Consequently the invention of excuses to avoid school duties is his constant study. One of the most ingenious of these is the death of his relations or connections. An occurrence of this kind, of course, gives him a good excuse for closing his school for a day or two to bury them respectably. As the pure Hawaiian is possessed of an unlimited supply of fathers, mothers, mothers-in-law, sisters, brothers, etc., deaths and consequent closings of schools are frequent.

The material for common school teachers is gathered from poor sources, as a rule. It cannot be otherwise until the teacher shall be specially educated for his work. Pending the special educating of teachers, the present force is obliged to conform its teachings to the

principles laid down for its guidance by the inspector general, which principles are embodied in a manual furnished each common school teacher, with the approval of the board of education. By means of the manual a uniformity of elementary instruction prevails in all the common schools.

It has been before observed that the unsectarian character of all the government schools has been guaranteed by the constitution of the educational department. This character is enforced by the board. School teachers are permitted to open and close their schools in any method of Christian worship which their consciences may dictate to them. After thus opening the daily session, for which a reasonable time is allowed, the teachers must devote their time and energies to recitations from the various text books approved and assigned to the schools by the inspector general. The board of education believes, and acts upon the belief, that, while it is responsible to the nation for the inculcating of sound morality in the minds of the rising generation, the religious education of the youth of the land is a parental responsibility which cannot be transferred to others; and the result of this action has been such that no complaints from any of the religious denominations in the country have been presented to the board. Teachers' institutes are held semi-annually, for the purpose of instructing the common school teachers actually employed in the current routine of school exercises, and giving them the opportunity of exchanging opinions on various topics connected with their profession. The persons who conduct these institutes are gentlemen of culture, and receive their programme of exercises directly from the inspector general. These institutes hold eight sessions of five hours each during the summer and winter vacations, and all common school teachers are required to attend, unless excused therefrom by their school agents. The pay of teachers attending is kept up during the sessions, and a sum sufficient to cover travelling expenses is also allowed.

The common schools are supported by an annual poll tax of \$2 on all males between the ages of twenty and fifty and by special grants from the legislature. The amount of school tax raised in each district constitutes the district's school fund. The unexpended balances of one district school fund cannot be used to supplement the deficiency in the school treasury of any other; consequently, the legislature places at the disposal of the board of education biennially a lump sum, to be used by it to supplement any deficiency which may occur in the funds of the poorer districts. In this manner the common schools throughout the kingdom have been kept open full time. The common schools are free, and the annual cost to the nation of each child educated in them was in the year 1874 \$7.40. The census of 1872 gave 8,931 as the number of school children throughout the kingdom, and of this number 8,287, or 92.8 per cent., were in actual attendance.

The select schools supplement the common schools to a certain extent.

The English language is taught in them, whereas the common schools are all taught in the Hawaiian language. The necessity of including the study of English was forced upon the government. Nearly twenty-five years ago the people became imbued with the idea that a mine of gold was hidden in the English language. They began to send their children to the ephemeral English schools which sprang up as if by magic all over the kingdom. English speaking foreigners entered into the school business side by side with natives who boasted a smattering of the tongue, chiefly to reap the harvest of dollars which appeared ripe for their sickles. The common schools were in danger of being closed for want of pupils, the fever for the acquirement of the English language pervading every district in the kingdom. But the people entered upon the campaign of mastering the difficulties of a foreign tongue without counting the cost. The popular idea was that the poorest pupil should be turned out a finished linguist in six months, or a year at most. Consequently, when the children returned home month after month with the well worn primer still in their hands, and tongues unlimbered by the English elementary sounds, the patience of the parents was worn out, and, "wearying of it," they returned them to the common schools. In the meanwhile the children had forgotten what they had been previously taught in their mother tongue, and had to go over the old course again, pulling up weeds in the poorly cultivated tract. At this juncture the department of education stepped in, and organized the class of select schools, wherein pupils could be taught the elements of an English education, provided their parents would agree to keep them at school for a sufficient period. Gradually these were separated into boarding and day schools.

The government school system culminates in the National College, situated on a hill 600 feet above the sea, on the island of Maui. Here, the young Hawaiian, thirsting for a higher education than that to be obtained in the common or select school, may obtain it. There is a course of four years. Students entering are required to pass a satisfactory examination in all the branches of a common school education. The Hawaiian language is the vehicle of instruction, although English is also taught. A normal course of two years for teachers has recently been added to the college.

The legislature of the Hawaiian Islands has prepared, by special act, a "reformatory and industrial" school for the juvenile offenders of the nation. This institution is also placed under the control of the board of education, and is wholly supported by biennial grants from the legislature. The juveniles placed there are compelled to labor, chiefly at agriculture, and are also taught in school three hours daily, Saturdays and Sabbaths excepted. Whenever opportunity affords, the board of education binds out pupils, having long terms to serve, to parties who will teach them a useful trade and have them taught the rudiments of an education.

In addition to its own school system, the board of education is required by law to render all the assistance in its power to the various female seminaries which have been established in the islands. The nation realizes more and more the necessity of faithfully educating its future mothers. A more laborious and self-denying class of teachers does not exist than the ladies who have the immediate control of the education of Hawaiian girls in these boarding schools. The method adopted by the board of education to render aid to these seminaries is by granting them fees *per capita* for all girls entering the schools under ten years of age, and continuing such fees until the age of sixteen. Within these limitations, and provided that an annual fee of not more than \$50 is charged for each pupil, to defray expenses of board and tuition, by the trustees of the seminary, the board assists each pupil in proportion to the time spent at school. After six months' attendance at school the school trustees can draw for each pupil the sum of \$10, and for every six months' additional and consecutive attendance \$5, until the sum of \$30 annually is reached, when the amount remains fixed at that figure until the pupil reaches the age of sixteen, when all further aid ceases. In return for this aid on the part of the government the board of education exercises a general oversight, "with the right to visit and to inquire into the general condition and operation" of the seminaries, "and to see that the objects of the public endowment or support are faithfully executed."

Private or independent schools, existing without aid from the public funds, are obliged to hold one hundred and eighty sessions annually, and each session must continue not less than three hours; otherwise, the law does not recognize them as schools, and the children attending them must be sent to a regularly organized school, or be liable to punishment for truancy. This law became necessary in the interests of popular education, to restrain the great number of incompetent persons, native and foreign, from establishing what it pleased them to call schools, keeping them for any time it pleased them, and disbanding them at pleasure. The law at present requires each one who desires to establish an independent school, unless he be a person well known as a competent educator in the community, or has satisfactory credentials from abroad, to appear before the school agent of the district in which he desires to establish his school, backed by a petition from the patrons of the proposed school. The school agent, upon receiving such application, designates a citizen of the district to act upon a board of examination, the candidate for the school appoints a friend, and these two appointees choose a third, and if the resulting examination before this board is deemed by them satisfactory, the applicant is granted a certificate to that effect, and upon his showing this certificate to the school agent he is authorized to open a school.

The registry of marriages, births, and deaths is by law placed under the control of the department of education, as is also the taking of the

census every sixth year. The preparation of text books in the vernacular demands much time and attention, and devolves upon the inspector general, who is generally authorized by the board to employ the assistance of competent persons in the various details of preparation.

The chairman said that he would now pass across the Pacific and call upon Dr. Murray, who represents the educational interests of Japan.

Dr. DAVID MURRAY, foreign superintendent of education for Japan, then came forward. He said the present system of education in Japan is a new departure made necessary by foreign nations (through Commodore Perry and others) forcing their way into that country and making it necessary for Japan to become formally a member of the nations of the earth. Contact and intercourse with those nations has made necessary a new kind of education. The Japanese had a system of education before that, which had grown up during many centuries, and which had grown in such a way that it answered the purposes of civilization and culture in that country; but when these European nations made their way there and the Japanese race was compelled to come face to face with that new civilization, with that new culture, with this new knowledge, then it made necessary a change, and, like a nation of sensible men, they made the change. That change consists in introducing, in place of the old Chinese education, which was carried on to so great an extent, (and which corresponds with the education given in the Middle Ages, when the philosophy of Aristotle and Latin and Greek classics composed the entire course of education,) the new education, which attempts to meet these new circumstances, and the system of schools that has been established, which includes all grades from the lowest to the highest, has been arranged upon this idea.

We have, therefore, a common school system of education which attempts to give an education to every boy and girl in the empire. This is a new departure, a new idea. It is an idea that originated in Europe. It is not long since that these western countries have learned to think that universal education is necessary for a nation. This idea of education, so far as government provision is concerned, pertained to the gentry of the country, to the nobility. But when it was found that this nation had to meet with nations who were universally educated, the idea of universal education also became necessary; so, throughout the whole empire we have scattered schools which are intended to give the elementary education necessary for boys and girls.

Commissioner Eaton desired Dr. Murray to state something of the specific courses of study in Japan.

Dr. Murray went on to say that the course of study is an adaptation of the courses of study that have been found beneficial and serviceable in other countries to the circumstances and language of that country. The written language of Japan is largely in the Chinese alphabet, written in Chinese characters; and hence the early part of the education of these boys and girls is taken up with learning the meaning of these

Chinese characters. The number of Chinese characters intended to be taught in the common schools would, he supposed, be about 3,000; that is, every boy and girl is expected to learn to make with facility, and with some degree of skill, these 3,000 characters, and to be able to know any one of them at sight, just as boys and girls in this country learn to read new words on the printed page at sight. This question of the language is much more difficult there than in any other country that he knows of. Then follow, in their order, the studies that naturally come. The pupils are taught the geography of their own country, and the geography of foreign countries. These about compose the studies of the elementary course. Following this we have secondary schools, intended to fill the place between the higher education and elementary education. The course of study there is a continuation of the study of the language, which in Japan is a constant study and must be followed up from early youth until manhood in order that it may be mastered, and that pupils may become thorough Japanese scholars.

The chairman here announced that Dr. Murray's time had expired.

MR. JOHN HANCOCK said that there was one point in the report read by Dr. Harris to which he would like to call attention, and that is in regard to the teaching of science in the public schools. He wished to know what has been the experience of those present. Dr. Harris provides a curriculum of study that goes round and round, and the pupil in the elementary school is expected to touch every point in that circle, to have something of mathematics, something of language, and something of natural science. This is a question which has been discussed in this country very largely. As Dr. Meyerberg has said, there is a cry on one hand that we are overburdening the children with a great number of studies; and on the other hand comes up this cry, that the natural sciences are coming into great prominence, and they ought to be taught; that no one ought to go out of the elementary schools without having some knowledge of the elementary sciences. And there is a practical difficulty of so shaping the course of study for elementary schools as that that course shall bring before the pupils of those schools these elements without crowding the study of something else that is equally or more important. He said that was a point he would like to have delegates from foreign countries touch.

The chairman said the subject was still open for discussion, and there was reason to expect that some of the representatives of the different States of our own country might be heard from. He would call upon President E. E. White.

Hon. E. E. WHITE, president of Purdue University, Indiana, addressed the conference. He said he was very much interested in the paper read by Dr. Harris, and he hoped that at some future day there would be a thorough discussion of its central recommendation. The paper states that it is possible to have one course of general instruction as a prepara-

tion for all special courses. If that is true, it solves a very difficult problem in American education. A continuous, uniform, general course for all grades of pupils and for all pursuits would greatly simplify the problem. He did not understand Dr. Harris to hold that special courses, as in law, or medicine, or technology, should come out of this general course at the same point, but that the general preparation for all these courses should be the same, though not to the same extent, the different courses coming out at different points.

If this be true, the public school course will be a proper preparation for the college, and also for the scientific school, the technical school, and the professional school, and we shall not need separate courses of study as a preparation for these different higher courses. This position of Dr. Harris should be thoroughly canvassed. He was *inclined* to accept it, (for he had great confidence in the ability of his friend,) but he was not prepared to say that he accepted it without qualification. He believed that a general course of preparation for all special courses of higher education should include all the great representative branches of study. Using Dr. Hill's celebrated illustration, a true course of study is a spiral stairway surrounding the great pillars of knowledge and cutting off a section of each at each round of ascent. He believed that this is true; but should a general course of education leading to the several special courses have these representative branches in the same proportion at each round of ascent? Natural and physical science, languages, mathematics, the science of man, etc., should enter into every general course; but is it true that at every step of these courses these several representative studies should enter *in the same proportion*? In a general course of study leading to technological studies should the languages be taught to the same extent as in a general course leading to professional studies? He was not quite clear on this point. He could see that these great branches of learning should be included in all courses of general education; but he did not see that they should enter into all in the same proportion.

The chairman announced the subject for discussion at the evening meeting, and invited all present to attend, and to extend the invitation to others.

He then declared the conference adjourned, to meet at 8 o'clock p. m.

SECOND SESSION.

JUDGES' PAVILION, CENTENNIAL GROUNDS,
Philadelphia, Pa., July 17, 1876—8 p. m.

The conference was called to order at 8 o'clock p. m. by Vice-President Phelps, who announced that the topic for the evening's discussion was: "The teacher in different countries: his preparation, status,

salary, and tenure of office;" and called upon Dr. J. G. Hodgins, of Ontario, Canada, to open the discussion.

Dr. HODGINS said there are two subjects to which the department of education in Ontario has given special attention during the last few years, both of which affect the teacher. The first is the condition and character of the school-house and its accommodations, and the second is the teacher himself. In both of these respects very great improvement has taken place within the last five years, especially in the condition and status of the teacher.

No person can be employed in any public school in Ontario, even in the capacity of a monitor, unless he shall have been examined and shall have received a certificate from some officer connected with the system of education. He first begins as a monitor in the schools, that is, a person who acts as a subordinate assistant to the teacher. His next position would be that of an assistant, not an assistant teacher, but simply an office of the next higher grade to that of monitor. For both of these positions he must hold a certificate from a county inspector, after undergoing an examination for the particular office. If he should have served an apprenticeship to some extent in either or both of these offices, then he becomes eligible for an examination as a third class teacher. After having served in that capacity for three years he then becomes eligible as a second class, and, in two years afterward, as a first class teacher. But the peculiarity of the system of examination is this, that when he aspires to the office, even of the lowest grade of teacher, he must submit to an examination which is common to all the teachers of that grade throughout the province. That examination takes place on a specified day and hour in every county in the province. Precisely the same papers (those papers having been prepared by a central committee) are sent out under seal to inspectors or county school officers, with special directions that the envelopes shall not be opened until such a day and such an hour, when the envelopes shall be opened in the presence of the candidates and their contents distributed by the examiners. The examination, therefore, is uniform throughout the province, taking place on the same day and at the same hour. The question papers for these examinations have, as I have said, been prepared by a central committee, so that the standard of the examination is uniform throughout the province. Upon the result of the examination the candidate receives a certificate or not, as the case may be, which is valid for three years within his own county, and not valid in any other county of the province, unless specially indorsed by the inspector of that county. He must remain in that grade, at the option of the inspector, at least three years before he can contest for a higher grade; and when he aspires to that grade he is subject to another examination of a similar kind on other papers prepared by the same authority and sent out to all the counties in the province. That examination is much more rigid, and takes a higher range of subjects than

that of the third class or lower grade. He must hold the certificate he then obtains for two years, when he may aspire to the very highest grade, or first class certificate, valid throughout the province. A peculiarity of this third and last examination is this, that while the papers or questions are prepared by the central authority the answers are examined by the same authority, and not by a county authority. All the answers received from the candidates for first class certificates are sent up to the education department at Toronto, and are there examined by a central board appointed by the government. On the favorable result of that examination the candidate receives either a first class certificate of the grade A or B, the purpose of which distinction I shall explain. A person holding a first class certificate of the grade B is entitled, *ex officio*, to become a county examiner of public school teachers. The examination for that certificate is exceedingly rigid; and when I mention the fact that, of the grades A and B first class certificate, out of upward of 5,500 teachers in the province only 250 are either first grade A or first grade B, you will see how exceedingly difficult is the examination for the first class certificate. The reasons for that, I think, you will agree with me, are obvious. From the fact that the holder of the first class certificate, grade B, is entitled, *ex officio*, to become a county examiner, it is very important that his qualifications should be of a very superior order. Then the holder of the first class certificate, grade A, has the right, *ex officio*, to become a county inspector; he requires no further examination, and his qualifications are prescribed in that way. Another reason for maintaining so high a standard is this, that no person holding a lower grade certificate than first A should be appointed to inspect the schools of teachers who may possibly attain a higher grade than himself. It was therefore wisely determined that no person should be appointed inspector of the public schools who does not give official evidence that he possesses the highest possible qualifications which a teacher of any public school in his own province is required to have under the regulations. So much for the examination and status of teachers.

The salaries are not yet equal to what we hope they will become by and by; but they have gone up with some regularity within the last five years. The ordinary salary of a second class teacher (it is not worth while to refer to the third class, as their compensation depends so much on the locality and character of the school) is from \$350 to \$500 and \$600 a year in gold. Those of the higher grades are generally from \$500 to \$1,000, gold.

In regard to another point which affects the status of the teacher, I may mention that, in order to keep teachers in the profession, (and I suppose that is one of the chief difficulties which every state experiences,) we hold out the additional inducements to which I have referred to those who aspire to the highest places as teachers in our public schools. The prize is, that they shall have the right to become examiners of teachers and inspectors of public schools, the latter being the very high-

est rank to which they can attain in the profession in the province. That rank is considered to be a very high one indeed. But further to encourage persons to remain in the profession as long as they can efficiently discharge its duties, we have provided a fund by means of which teachers, having become worn out in the profession, shall have the right, when they reach the age of sixty, to retire, and to receive a pension, at the rate of not less than \$6 per year for each year of service, and an additional dollar per annum, if the teacher shall have reached the highest grade in his profession. We have, I think, now nearly three hundred venerable men pensioned as teachers in the province, drawing at that rate per annum for their services in past years. You will be surprised to find that the average age of those persons, according to the last report, is at least sixty-five years, and the average amount of service which those teachers have rendered to the province is about twenty-two years. I think there is no feature of our system of education that commends itself so entirely to the judgment of the practical man and the benevolent heart of the philanthropic man as this special and (on this continent) peculiar feature of our public school system. We have, as you see, in these ways endeavored not only to fix the status of the teacher as high as possible, but also to reward him for his past services after he shall have become worn out in the service. And I may add in regard to this provision of the school law, that it is not necessary that the teacher should reach the age of sixty years; if he becomes disabled from any cause—even from causes not arising out of the practice of his profession—if he should become permanently sick or deranged, or become disabled by accident, then he has the right to retire and receive a pension, he or his friends furnishing evidence of the facts satisfactory to the department. One of the most agreeable duties which devolve upon the department is the examination of these cases from time to time, some of them, though rarely, of teachers of not more than thirty-five or forty years of age, and the majority from sixty to seventy or seventy-five years of age. It is indeed a pleasant thing to be able to recommend to the honorable the minister of education that such and such persons, having become superannuated in the service as public school teachers, shall be entitled to a pension according to the length of their service.

In reply to questions Dr. Hodgins stated that the classics are not taught in the public school, but in the high school, and that there is no limit attached to the age of an inspector.

On being asked to state the annual pay received by these county inspectors, Dr. Hodgins said that he had forgotten to mention one peculiarity about their school system which he hoped they would be able to extend further. The salaries of inspectors are fixed by law at \$5 per school, payable by the county, and \$5 per school, payable by the province; so that, in point of fact, the inspector is a provincial officer, yet having a county status. By a liberal interpretation of the law,

the inspector receives really more than the amount named; because a department of a school is considered a school—that is, a department of the school which is under a teacher with a register of his own and in separate rooms requires as much care and inspection as any school. In that way his salary is somewhat increased; but in addition to that he is entitled to a certain specified allowance for services rendered in the settlement of disputes, and in other ways his salary is increased so that it is from \$1,200 to \$1,800 a year in gold.

The chairman said the conference hoped to hear from some other gentlemen representing foreign countries on this subject.

Dr. MEYERBERG, of Sweden, then addressed the conference. He said he had already spoken of popular instruction in Sweden, and he would now give some idea of higher education in that country. He thought it a great advantage that the popular schools have no connection with higher institutions of learning. If the public or common school were to prepare for higher grades, they could not do as good work as they now do. While their only aim was to teach the common branches thoroughly, they could show excellent results. The more advanced public schools teach, in addition to the common branches, some elements of secondary instruction. These schools are intended for such children as can devote a few more years to education than the children in general.

Commissioner Eaton here interrupted the speaker, saying that he hoped he would say something about the teachers in Sweden.

Professor Meyerberg, continuing, said he wished to state that they have now in Sweden twelve normal schools, ten for male and two for female teachers. The normal course is now three years. Since there were many applications for admission to the normal schools, the standard for admission has been raised. The branches of instruction are the same as those in the common schools, and also physics, chemistry, drawing, and gymnastics.

Commissioner Eaton inquired how much time is devoted to the philosophy of education.

Professor Meyerberg answered that two hours a week are devoted to the study of pedagogy in the first class and four hours a week in the second class schools. The students of normal schools have also practical exercises in day and evening schools. In Stockholm a school of nearly 400 pupils is connected with the normal school. The professor said there is a great want of good teachers, especially of good female teachers, in Sweden. The employment of female teachers has not been favored very much heretofore, but now there seems to be a general demand for them.

In Stockholm, there are four female to one male teacher. The female teachers are doing excellent work, and are highly esteemed for their great zeal in school.

Their salaries are the same as those of male teachers in all country schools, but in cities female teachers receive less than male. The allowances of teachers consist of money and a dwelling-house with garden, the average amount paid being 500 crowns,* annually. In some places teachers also receive the necessary fuel. Salaries, he said, are raised every five years. It depends a great deal on the generosity of the local school authorities whether salaries are high or low, because it was left to them to fix the amount.

In answer to the question whether the smaller schools pay that amount, Professor Meyerberg said they do. But there are other schools, called infant schools; the salaries paid to the teachers of these schools are less, and these teachers have not passed an examination in the normal school. They are trained in a school connected with the normal school, or in other schools established by the government. Sweden is divided into different governments, each government having an assembly, and sometimes this government assembly establishes normal schools for the instruction of female teachers for the infant schools.

In reply to the question as to how these salaries compare with those paid for services in other positions, Professor Meyerberg said that in the towns and cities teachers are better paid. They receive about 1,500, 2,200, or 2,400 Swedish crowns. It is difficult to compare salaries because those for the various officers differ so widely. The highest salary in his country is about 20,000 Swedish crowns. The salary of a lieutenant in the Swedish army is about 500 Swedish crowns; a captain has about 1,200, and a colonel 3,000, and sometimes 4,000 crowns. Clergymen are very differently paid, because they are paid from the different parishes, and their compensation depends upon the number of the faithful under their charge. They are generally paid 500, 600, 700, 800 Swedish crowns.

Commissioner Eaton here desired to ask Professor Meyerberg for information as to the status of the teacher in Sweden, his rights, the conditions of his tenure of office, conditions of removal from office, and whether he receives a pension.

Professor Meyerberg replied that a teacher can be removed from his place upon an admonition from the board of instruction in the parish. If he were accused of a fault, and lost his place, he had the right of appeal to the king. It very seldom happened, however, that teachers were discharged. They did not generally lose their places unless they were incapable.

He was then asked if the position is for life, provided no offence be committed against the law and the teacher remain competent, and and if teachers receive a pension.

He replied that it is a life position, and that teachers receive a pension after thirty years' service, when they are sixty years old. This

* The value of the Swedish crown in United States gold coin is 26.8 cents.

pension was three-fourths of their salary. If they become sick after ten years' service, they receive a slightly reduced salary. He thought the reduction was about 4 per cent. a year for each year of service.

He was requested to state how many teachers in his country are now drawing pensions.

He answered that there are not a great many yet; he supposed not more than 600 or 700.

He was then asked if this pension was paid by the government.

He replied it was paid in this way: the government or diet has given a sum (about half a million) to constitute a fund, and the parish or board of instruction must contribute to this fund 4 per cent. of the salary. If the teacher dies, the wife and children receive a pension, and to this pension the teacher must contribute himself. In case of a female teacher being married, her husband becomes the pensioner. [Laughter.] If husband and wife are both teachers, they are each entitled to a pension.

In answer to the question, Are any teachers employed except those who have taken a course in the normal schools? Professor Meyerberg said there are some in the towns and cities. In Stockholm there are a few. Young students and those they call doctors of philosophy are employed in the schools there because of the lack of teachers; and generally after some years' service, if they are found to be efficient, they receive the right from the government to be considered examining teachers.

In reply to the inquiry as to whether pensions are paid to civil officers generally after a certain term of service, or if they are confined to teachers, he answered that there are different pension funds that the civil officers themselves had established. The question of allowing all officers pensions was being agitated. All clergymen have pensions. If a clergyman dies, his wife generally has his income during two years from a fund formed by the clergymen of different districts.

In reply to a question, Professor Meyerberg stated that it is impossible for a teacher to be discharged by a board of education without some cause being assigned. If he were a drunkard or a criminal he would be discharged.

On being asked who examined the teachers, Professor Meyerberg replied that they are examined by the teachers in the normal schools.

Being asked whether teachers in cities are supplied with houses, he answered they are not. They were formerly furnished houses in Stockholm, but now there are thirty to forty teachers in one school-house, and it would be impossible for them all to live there.

He was asked as to the requisite qualifications of a teacher in the public school. He answered he must have been three years in the normal school, and have passed the examination there.

To the question, Must the qualifications of those who are not graduates of the normal school be equal to those of persons who have grad-

uated there? he answered that they must. It depended upon the superintendents or boards of instruction whether such persons should be employed in the schools. If such teachers proved satisfactory after trial, they were given by the government the same rights as a teacher who had been examined.

Commissioner Eaton said he believed they have in the sparsely settled districts of Sweden what are called ambulatory schools.

Professor Meyerberg answered that they have.

He was then asked by Commissioner Eaton whether the teachers of these schools have all been educated in the normal schools, and, if the school is held only a few months in a place, how they could afford to employ teachers educated in the normal schools.

He answered that these ambulatory schools are mostly in districts in the northern part of Sweden where the population is sparse. The teacher comes to the children; and in these districts there are more so-called infant schools than any other kind. In some of the large districts with four or five hundred inhabitants there are three or four infant schools, which are generally taught by female teachers. These teachers are not examined in the normal school, but in a school established for the instruction of female teachers who are to teach infant schools.

In reply to the question as to whether there are permanent school-houses for these schools, he said sometimes there are and sometimes not.

He was then asked how far the scholars travel to these schools, and answered about three English miles, which was too much.

Asked to what extent the Kindergarten system prevails, if at all, he replied that the Kindergarten system prevails in Stockholm and in some other cities and towns, but not in the country.

He was asked if a teacher in Sweden proved incompetent, or unsatisfactory to the people in any way, whether there are any means of removing him; and also, how much time a day and how many days of the year are occupied by school instruction in the rural districts and small towns. He answered if the teacher was incapable certainly he could be removed, but it would be very difficult to do so. The matter must first be called to the attention of the superintendent of the school, and he must examine the instruction given by the teacher and report upon it; then the teacher may perhaps get an admonition from the board of instruction, and afterward be removed; but it is a very difficult matter to remove him except for sufficient cause. Formerly the peasants in the country wished that the teacher might give instruction as many hours a day as possible, but now there is a regulation that they shall not teach more than six hours a day. As to the number of months and weeks, that varied; it depends upon how many schools there are in the parish. Generally nearly the whole year is given to instruction in an infant school; but in other schools the time is less.

In reply to the question whether education is compulsory in Sweden, he said that it is. If parents neglect the education of their children they are at first called before the board of instruction, and receive an admonition from the presiding officer of that board. If that have no effect, the board of instruction can take the children and have them educated at the expense of the parents, but it is in most cases impossible to collect money from such parents, since they are generally poor.

The professor was asked how many children there are given to a teacher on the average. He answered in the schools of Stockholm the average number of pupils to each teacher is 50. It is the same in the other towns and cities. In the country the number ranges from 60 to 70, and often more, because there are no regulations in the country relative to the number of pupils.

Prof. E. JONES, of Liverpool, England, said that perhaps the meeting would like to know something respecting the training, preparation, and status of teachers in England. In the first place, very great care is bestowed upon the training of teachers. It is done in this way: At the age of 13, boys and girls, the best of the school, are selected as candidates for pupil teachers. If they pass the examination satisfactorily, they are apprenticed for five years. They are not only teachers but pupils; that is to say, they teach in the school according to ability, and they also pursue their studies. At the close of every year they are examined by the government inspector or examiner. A failure in this examination, or a failure in character, or inaptitude to teach, disqualifies them, and they drop out. The same takes place according to a graded scale every year, until by the end of the apprenticeship of a certain number of young people, many of them would be sifted out and only the best (the cream as it were) remain. At the close of their apprenticeship these young men and women are subjected to a more rigid examination preparatory to entrance upon the normal school. If they pass this examination they are entitled to what is called a Queen's scholarship; that is to say, to a maintenance or part of a maintenance in a training college for two years. The course there, perhaps, may be described as more thorough than ambitious. They do not undertake classics or languages very much, but the English language is studied thoroughly, and mathematics as far as it may be required in elementary schools. But great attention is paid in these training colleges to physical science, chemistry, and botany. Other subjects are taught, and the students are very strictly examined by examiners outside of the college in all these subjects. These examiners are appointed by the government at the close of the term. He might say that music is always a subject of study, and also drawing in its four branches—free hand, perspective, model, and geometrical—and the pupils get certificates for excellence in each of these subjects. At the close of two years these young people are examined preparatory to their going out

as teachers. If they do not give satisfaction at this examination, they fall out again ; so that the *crème de la crème* of the candidates is reserved for the work of teaching. But they are not yet fully qualified. They may get a provisional certificate at the close of the term of the third degree ; but the full certificate is given only upon actual successful teaching—upon success in teaching after three or four years' experience—so that an English teacher must have passed through nine or ten years of preparation before he or she can be fully equipped for the work. He said he had not the figures before him giving the exact proportion of those now engaged in teaching of this class who have gone through the process described. There are other avenues to the work of teaching ; as, for instance, teachers may go up for a low grade of certificates to teach in the rural districts, in which case they are admitted on a lower examination and without passing the training college. Also a lower certificate may be obtained for teaching infant schools, but he should say about 80 per cent. of all the teachers now engaged in England are such as have passed through the first course described.

Now, as to the status of the teacher and his relation to the government. No one ever dreams of engaging a teacher for a year or a fixed term ; the engagement is considered to be for an indefinite term, until he or she can better the situation. There is no thought of changing a teacher at the end of the year or of a number of years, unless he becomes inefficient, and then the manager of the school has the right to give three months' notice, and at the expiration of that time the bargain ends.

With regard to the salary of a teacher in England, he thought that if translated into dollars, it would be expressed something in this way : For a small rural school kept by a lady teacher, it would be, say, \$250 a year ; that is the lowest, and from that it would mount up by a gradual scale to \$2,000 a year for male teachers in the best schools in the cities. In a good city school, in Liverpool, London, or Birmingham, a principal male teacher will get from £200 to £300 a year—i. e. from \$1,000 to \$1,500. That would be considered a good salary. The ladies, he was sorry to say, are not paid at the same rate, though they may be equally efficient. Their salaries are about three-fourths those of the gentlemen ; a master would get £100, and a mistress £75. One great grievance that English teachers feel is this, that there is no opening out of the profession ; that is, there is no promotion, no reward for good service. The inspectors are appointed entirely outside of the class of teachers. Their power is very great. There is no appeal from the inspectors' report, and there is no pension, he was sorry to say.

Being questioned as to how these inspectors are chosen, Professor Jones replied that they are government appointees. They are required to be first class Oxford or Cambridge men in honors, so that their education is guaranteed, but not their practical experience.

In answer to the question as to whether they have no practical experience as teachers or in regard to common schools, he replied they

have none whatever. It has been known that a young man of five-and-twenty, who may never have been inside an elementary school, and may know nothing about it, although an excellent scholar, should go at once and inspect a teacher who had spent five-and-twenty years in teaching.

He was asked whether there is any reason for thus excluding practical experience, and answered that the teachers could not understand it; they cannot see the reason. The thing has never been attempted to be explained by the government; perhaps it is a piece of government patronage that the president of the council does not like to dispense with.

In response to a question as to whether these inspectors are appointed for counties or districts, and in regard to the length of their official term, he said that they are appointed for life — it is a career as a rule — and they are appointed to certain districts.

To the question as to the present compensation of the inspectors, he replied that it begins with about \$2,000 to \$2,500; £400 is the least; then it increases at a fixed rate, up to £800 a year; that is, \$4,000.

Professor Jones was requested to mention the names of some inspectors that occurred to him. He said a very old inspector is D. J. Morell, who has been thirty years in the work; should think his emolument would be the maximum.

In answer to a question as to the number of such inspectors, he said the number under the education department is about seventy-five in all England, and they have assistants selected from elementary school teachers, but the salaries of the assistant inspectors are not equal to those of the teachers themselves. They are simply the clerks of the inspectors, quite a distinct class.

Professor Jones was asked if Matthew Arnold is not still an inspector, and replied that he is.

Then being asked what difference there is in the qualification of those employed by the school board and other teachers, he replied there is none whatever; as a rule the school boards pay better; they can draw upon the local rates, whereas other schools depend upon the voluntary contributions of friends of education in addition to government appropriations.

He was asked whether Matthew Arnold, for instance, spends every day in inspecting primary and other schools, and answered that he does, and has to give an account strictly of every day and hour that he spends in that department.

Commissioner Eaton said that before drifting entirely away from the topic which has been engaging the attention of the conference this evening, he would offer the following resolution:

Resolved, That the thanks of this conference be sincerely extended to all gentlemen who have favored us with their instructive remarks this evening.

The resolution was agreed to. [Applause.]

Hon. G. Videla Dorna, of the Argentine Republic, said he had come

by invitation prepared to make some remarks to-night on the present topic of discussion, but would defer his remarks until the following morning if that would be more agreeable to the conference.

It was informally agreed that he should be heard at the next session.

The chairman declared the conference adjourned to meet the next day, in the parlors of the Pennsylvania Educational Hall, at 10 o'clock a. m.

THIRD SESSION.

PENNSYLVANIA EDUCATIONAL HALL,
CENTENNIAL GROUNDS,
Philadelphia, Pa., July 18, 1876—10 a. m.

The conference was called to order at 10 o'clock a. m. by Chairman Phelps, who said the desire was expressed last evening that the discussion of the topic for the evening—"The teacher in different countries: his preparation, status, salary, and tenure of office"—might be resumed this morning. There are two gentlemen who will address us. He then called upon Dr. J. George Hodgins, of Ontario, Canada.

Dr. HODGINS said, before he resumed his remarks of yesterday evening, he begged to be permitted to express to the American gentlemen at this convention, not only for himself, but in behalf of other foreign educators present, their grateful thanks for the great courtesy which had been shown to them by the American educationists gathered at this exhibition. He said he had felt it as a personal kindness shown to himself as well as to these gentlemen; and the kindness and courtesy evinced last night, in proposing a vote of thanks to those from foreign countries who had attended the convention, he felt was beyond their deserts, because they had experienced so much courtesy and consideration to which they personally made no claim.

Resuming, Dr. Hodgins said: In the remarks which I had the honor of addressing to the convention yesterday, I omitted, for want of time, the mention of two particulars in regard to the system of education in Ontario which I shall now bring before you. I refer (1) to our normal school system of education, and (2) to the rights of teachers in our province. Those are connected especially with the subject now before the convention.

1. I may say so deeply impressed were those connected with education in our country that, from the period of its foundation, the normal school should be considered an important adjunct, that in 1847 the legislature made a very liberal grant for the establishment of the normal school in Upper Canada. The normal school has been in very successful operation since that time. I shall tell you why it has been so successful; it was felt that no person should leave the normal school, with its authority to teach, unless he was equipped for the performance of the duty for which that training was required of him; and no person

was allowed to leave the institution with a certificate testifying to his qualifications as a teacher until those qualifications had been tested in a satisfactory manner in a school of practice, and after he had acquired that position as the result of an examination which was very rigid indeed. Not only was it considered that the literary qualifications of the teachers should be as high as possible, but the main cause of the success of the normal school has been just this, that no person has been allowed to go out as an authorized teacher from that institution unless he has proved, by actual experiment in a school of practice, that his qualifications for teaching have been well tested.

Attached to the normal school are two model schools, one for boys and one for girls, divided into three sections of seventy each, under the special care of trained masters or mistresses. Those in attendance at the normal school are required to be present at these model schools; and they must not only to listen to the instruction of the masters or mistresses of the schools, but must also take part in the exercises, under the oversight of the teachers. Very careful note is made of the daily progress of the student of the normal school who may be in charge of the class, and defects in teaching are noted down in a book, and at the proper time and in the proper manner the defects noticed are pointed out to the teachers themselves. Not only are the literary qualifications of the teacher carefully looked after, but in order that he may procure a certificate as teacher the examination in the model school department must be satisfactory to the teachers of the normal school. Thus we are sure to send out none but carefully trained teachers, not only in theory, but in actual practice; and this is an essential part of our normal school instruction. The Ontario normal school was established in 1847, and nearly eight thousand persons have been instructed within its walls up to the present time. The model school is so very popular, as an admirable school for the education of pupils, that we generally have two or three hundred applications in advance for admission to the school. The great desire to gain admission to that school is induced by the fact that the training is the very best that can be given; and although the schools of the city are free to all the ratepayers, yet parents prefer to pay the additional charge of one dollar per month in advance to gain admission to this school.

Many of the boys who have gone out from the model school are sought for by merchants and men of business; so that you can see that when a teacher in training passes through a school like ours, under the careful supervision which is exercised in it, he must have some real practical knowledge of the art of teaching, and of the best methods of communicating the knowledge which he has acquired. We hold it to be so essential that the teacher should have this personal practice in the model school, that we do not consider any normal school instruction to be complete which does not combine this practical training in the model school with normal school instruction. Within the last year an addi-

tional normal school has been established on the same footing in the city of Ottawa, or capital of the Dominion, for the eastern section of the province.

2. In regard to the "rights of teachers" in the province of Ontario, the law, in the first place, prescribes certain duties which the teacher must perform; but in the exercise of his vocation as teacher he himself has certain rights. In other words, his status is recognized by law, as a person cannot be legally employed as a teacher in the country unless he possesses a certificate of qualification; and a special agreement in writing must be entered into by the trustees with him. To give this the more effect, the law declares that no agreement can be enforced between trustees and teachers unless it be in writing and stamped with the seal of the corporation. The trustees cannot dismiss a teacher at their pleasure, unless in accordance with the terms of that agreement and the teacher is a voluntary party to it. In order to secure to the teacher the privileges incident to his profession, the law declares that he shall be entitled to the whole of the holidays and vacations occurring during the year or the school term for which he is employed; and in order to secure to him to the fullest extent the advantage of that arrangement, the law also declares that he shall be entitled to the holidays which follow the expiration of his term of service, and his salary still runs on until he is paid up in full. So that should a teacher be dismissed at the end of the midsummer term he must be paid for the additional six or seven weeks of vacation following. There is no possibility of defeating that provision of the law. The teacher is therefore secured in his salary for the term up to the end of his vacation, or for the year, as the case may be. Another benevolent provision of the law in the interest of the teacher is that in regard to sickness. As teachers are frequently liable in the course of a year to lose time by illness, the law provides that the trustees must allow them for such losses at the rate of at least four weeks during each year, and as much longer as they please. In that way the teacher is not compelled to suffer from an occasional sickness and in addition lose his time and salary, but he is secured in his salary during the period of his sickness, within the prescribed limit of time. Thus the interests of the teacher are in every way secured. In the first place he is most carefully trained, and in the next place his interests are carefully guarded. The school year embraces the whole of the civil year, and the schools in Ontario are kept open during that time, deducting holidays and vacations, except in the outlying districts of the province, where the schools are kept open about half of the year. One inducement to the keeping open of the school during the entire year is that the moneys granted by the legislature are at first apportioned to the county according to the school population, or, in other words, according to the number of children which the county is required to educate, and a specified sum *per capita* is given to the county to enable it to discharge this duty. The money is then redistributed to the schools, not accord-

ing to the length of time during which these schools may have been kept open, nor the numbers on the roll, but according to the number of children being educated in the school. The mode of distribution is to take the average attendance for the six months of each year, and according to that average attendance the apportionment is made to each of the schools of the county. Thus an inducement is held out to keep the schools open during the entire year. Then, again, the law very wisely provides that any moneys lost to a school in consequence of the refusal or neglect of the trustees to keep it open must be personally made good by the trustees themselves; the trustees, therefore, have to make good out of their own pockets any moneys lost to the school from any cause arising from their neglect of duty. Thus in the interest of the teachers you see, the inducement is to keep the schools open the whole year and to keep teachers employed all the time, and pay them not only for all the time they are employed, but for holidays and vacations.

These are the main points of the additional subjects to which I should have referred yesterday had time permitted. If there are any matters which I have omitted, I should be very happy to be called on to answer any questions. Dr. Hodgins was questioned as to the average length of time teachers remain in their profession. He replied that they have no precise means of judging at present of the average length of service. By the law of the province, each male teacher is required to pay into a superannuation fund a sum at the rate of \$2 every six months. In the case of female teachers this payment is optional, but the male teachers are required to make this payment. They have, on retiring from their profession, the right to receive back one-half of the moneys which they have paid in. We hope in the course of a few years to have from these facts data by which we can answer a question of the kind now proposed, but I am not able at present to answer it. I might in general terms state that the length of service has very greatly increased within the last few years. The operation of the beneficent provisions of the law to which I have referred has had the effect of continuing in the profession some of the best teachers. Many of them have been in it fifteen or twenty years. My own experience in the department extends over thirty-two years. I can, therefore, speak from my own personal knowledge. The teacher, if ambitious to remain in the profession, can distinguish himself in due time, by diligence and ability, even to reach the highest position in his profession—that of inspector of public schools.

The chairman then introduced Mr. G. Videla Dorna, chargé d'affaires of the Argentine Republic.

MR. DORNA said he had not so much experience in educational matters as the distinguished gentlemen who preceded him. He could not speak of anything new, but he had come to learn, and hoped that the conference would listen to him with that paternal feeling with which a good educator listens to his pupils. He said he was neither a professional

educator nor an educational representative for the Argentine Republic but, in the absence of both, he felt it his duty to attend the educational meetings, in order to answer questions relative to public instruction in his country. He would limit his remarks to mere statistical statements based upon the latest official report of the minister of public instruction, Dr. Lequizamon.

The Argentine Republic could not yet be judged from the European standpoint; he would therefore compare her with the other South American states. The three leading countries in South America are Brazil, Chili, and the Argentine Republic. He would now compare the official statistics, and determine the relative position of his country with regard to public instruction. According to the official reports, the population of the Argentine Republic is nearly 2,000,000; that of Brazil 11,780,000; and that of Chili a little over 2,000,000. The number of children between the ages of 6 and 16 years is, in the Argentine Republic 459,122; in Chili 509,941; and in Brazil 2,945,000. The number of primary schools in the Argentine Republic is 1,850; in Chili, 1,256; and in Brazil, 4,593. The total number of pupils in these three countries is, in the Argentine Republic, 117,203; in Chili, 83,812; in Brazil, 155,058. Children receiving no education number in the Argentine Republic 341,919; in Chili, 426,129; and in Brazil, 2,789,942. In the Argentine Republic there is one school for 992 inhabitants; in Chili one for 1,624; and in Brazil one for 2,564. In the Argentine Republic one in every fifteen, in Chili one in twenty-four, and in Brazil one in seventy-five children of school age receive an education. He said he had taken the figures for Chili from the report of the minister of public instruction for the year 1874, and with regard to Brazil he had based his statement upon an official document of that country prepared for the Vienna Exposition in 1873.

All these official statistics show sufficiently well that the Argentine Republic has done very much for the education of the people; they also show, he said, what place his country deserves among the countries of South America. He wanted to have this well understood, because his country is a republic, and his countrymen want to prove that they know no greater question than that of educating the people. Although his country is not the richest of the South American states, it afforded him great pleasure to state that his government expends more money for educational purposes than any of the other states. The Argentine Republic expends, he said, \$2,425,259 a year for public instruction; Chili only \$1,133,353; and Brazil not more than \$2,356,738 per annum.

Mr. Dorna then explained the organization of his government, and said that it is similar to that of the United States of America. The Argentine constitution differs, however, a little from that of the United States, because his country has made the educational question an article of the constitution.

The constitutional provisions relative to education guarantee the lib-

erty of teaching and learning, and provide for the appointment of a minister of public instruction, whose duty it is to report annually upon the condition of the different institutions of learning in the whole country.

The national government has always exercised its constitutional power to control public instruction throughout the republic, and this control has proved very beneficial. Very much has been done during the last ten years. A national university, a national observatory, fourteen national colleges for secondary instruction, five normal schools, schools of law, of medicine, of commerce, and of agriculture, and one hundred and fifty popular libraries have been established, and fourteen normal schools for women would soon be established in his country.

In regard to teachers, Mr. Dorna said he would only speak of their salaries and appointment. The salaries of national teachers range from \$80 to \$100, gold, a month. College teachers receive a higher compensation. In Buenos Ayres, the director of a college receives \$230 a month, and each professor \$113. Teachers keep their situations as long as they behave well. Pensions are not paid to teachers, but a movement has been made in this direction. A person who desires to teach in the common schools has to be trained in the normal schools and pass an examination in the following branches: Reading, writing, arithmetic, geography, grammar, algebra, physics, history, Argentine constitution, composition and declamation, drawing, object lessons, singing, moral instruction, gymnastics, and pedagogy.

Mr. Dorna was here interrupted by Mr. Wickersham, who said that a lady in the audience desired to state that the first normal school on this continent had been established in Chili by Dr. Sarmiento, late President of the Argentine Republic.

Mr. Dorna believed this to be true, and said that this must have been in 1838 or 1840.

Mr. Wickersham said that Dr. Sarmiento was elected President of the Argentine Republic while he was visiting the public schools in the United States, and that he was now inspector of schools for Buenos Ayres.

Being asked if the Kindergarten had been introduced in the Argentine Republic, Mr. Dorna said that there are several Kindergärten in Buenos Ayres, but they form no part of the public school system. Kindergärten in Buenos Ayres are pay schools, and therefore not attended by the poor, with the exception of one or two under the supervision of the provincial government.

The chairman said that Dr. Da Motta desired it to be understood that the figures concerning Brazil given by Mr. Dorna refer only to education in the provinces, and do not include the technical schools, higher schools, and private institutions, and, therefore, do not show what Brazil is doing for education, and offer no accurate data for such comparisons as have been instituted by Mr. Dorna.

The chairman announced that Professor C. J. Högman, of the normal school at Yyveskyla, Finland, was present, whom he would introduce to the conference.

Professor HÖGMAN came forward and addressed the conference in the Swedish language. At the conclusion of his remarks, Professor C. J. Meyerberg interpreted them, as follows:

This gentleman, who came from Finland a few days ago, has spoken about the normal schools in Finland, a country that belonged formerly to Sweden, but now belongs to Russia. Finland, however, has its own laws, and is, in regard to fiscal and educational matters, entirely independent of Russia. Finland has at present three normal schools, one of which is for those who desire to prepare for schools where Finnish is the leading language. Nearly the whole population of cities and towns speak Swedish, while in the country Finnish is almost exclusively spoken. Professor Högman has been recently appointed teacher of the Finnish normal school at Yyveskyla. It is customary in Finland to send teachers abroad before they enter upon their duties, in order to enable them to study foreign methods of teaching. Professor Högman is now here for the purpose of studying the American school system, and he says he finds it admirable.

The Finnish normal schools are not very old yet, but they can be favorably compared with other normal schools in Europe. If Finland continues to work with its present energy, its system of public instruction will soon be one of the best in the world.

The salary of teachers in Finland is about 3,700 Finnish crowns, (4 crowns = \$1.) The female teachers receive only one-half of that amount, although they are doing excellent work.

Hon. J. P. WICKERSHAM, superintendent of public instruction for the State of Pennsylvania, said that he wished to occupy a short time in the explanation of a few facts which concern education here in America. These facts seem somewhat to our disadvantage. And, without taking the ground that America is better in the respects that he was about to refer to, he wished to give the plain reasons why these facts exist. First, he wanted to explain why it is that in America we do not furnish teachers with dwelling houses in connection with the school-houses. Now, in Brazil and in Sweden, and in some of the other countries of Europe, they connect dwelling houses with school-houses. We do not do that in America for certain reasons. One of these is that we have established graded schools that employ a number of teachers. You noticed last evening Dr. Meyerberg said they did not have dwelling houses in Stockholm, for the reason that they employed quite a number of teachers in each school-house. Now, it is the great purpose of American education and American educators to have several teachers in one school-house. In all our cities, in all our towns, in all thickly settled neighborhoods, there are several teachers in the same school-house; and

therefore we cannot very well connect dwelling-houses with school-houses. Of course, we have a great many schools that are not graded schools. These schools are generally taught by young, unmarried persons. Three-fourths at least of American teachers who teach in ungraded schools are unmarried. He did not mean to draw a comparison between our custom in this respect and that of other countries. He was simply giving the reason why it is so here.

Now for the reason why we have not pensioned our teachers. He was not about to maintain that it would not be better if our teachers were pensioned, but was about to give the reason why in this country we have not yet pensioned old teachers. In the first place, it is understood that education in this country is not so much a state concern as it is a concern of the people. Teachers in America are not part of a great civil service; they do not bear the same relation to the General Government, by any means, that soldiers bear. The Government does not fix their salaries, and does not fix their status in any way. Public education in America is not a creature of the state, but a creature of the people; and when we pension our teachers the pension will be voted by the people and not handed them by the general or a State government. By virtue of our institutions, the power comes from the people or boards of instruction. They fix the teachers' salaries and status, and therefore the Government does not consider the question of pensioning them. Besides that there are two classes of teachers, and one of them does not need a pension; they would be too independent to receive it. They are a very independent class of persons; and a large number of those who receive small salaries only remain in service a short time. He did not believe that, out of 17,000 teachers in the State of Pennsylvania who teach in the primary schools, there are 100 persons who have taught thirty years, taking Pennsylvania from one end to the other, outside of the graded schools. Therefore we do not think of pensioning these young ladies and gentlemen who teach only temporarily. They do not want it. They do not expect to teach very long, some five years, some ten; then they will go into some other kind of business.

Now, sir, about permanency. Our teachers are not permanent. Gentlemen are apt to draw disparaging conclusions between this and other countries in that respect. He was not about to say that they ought not to be more permanent, but in America we have a constant social change; the higher stratum of society goes down and the lower stratum comes up. It is the survival of the fittest in this country, the survival of the strongest; and the man of brain, no matter if he was born in the lowest cabin in the land, has the privilege of sitting in the presidential chair. [Applause.] And it is this constant ferment which makes all conditions necessarily fluctuating and flexible. There is some advantage in permanency; there is some advantage in keeping teachers for life; but there is also an advantage in introducing new blood into the schools, and he would like to impress this fact, that the very best blood in the

United States of America runs in the veins of the men and women who are teaching our schools to-day. [Applause.] They come from our very best families, from all the nobility we have in this country. You will find them graduating at Harvard, Yale, Lafayette, and Pennsylvania University, and in the best normal schools, and going down to teach the lower schools, because that is the place to begin; and they go up, up, up, and up until they sit in the highest seats in the land. He ventured to say that one-half of our members of Congress, one-half of our governors of States, and one half of our judges of courts began by teaching in the common schools. Such is the condition of life here. Do not understand me as saying it is better than in other countries. As to himself, he commenced teaching a country school at \$20 a month. He never expected to remain there; he meant to go higher. He taught at that salary and then at \$24, and then at \$30, and so on, until to-day he had a different position. So it is with these young men and women. Though they do not introduce into teaching the long experience of permanent teachers, they introduce into it that vigor and life that are hardly possible where there is not this mobility. Besides, there is another advantage, and that is, that until we have some fixed principles of teaching, until we understand the great laws of human growth—how the body grows, how the mind grows, how the soul grows—and teach according to those doctrines, it is better that we should not get into a rut out of which we can hardly struggle. Teaching here is to-day a mere empirical art. There must be great experience; there must be fundamental laws according to which the mind and soul grow, and when we learn those, then he would like to see a permanent profession of teaching. But he did not want American teaching to crystallize around methods that are altogether false or only partially true.

He did not want to make a speech in favor of American education; but he loved his country too well to be willing, by silence, to allow any disparaging conclusions to be drawn from the comparisons that had been made between the customs of this and of other countries. He was ready to acknowledge what is good in other countries, and anxious to learn from them. Pennsylvania and the United States of America welcome these foreign gentlemen here and now, and thank them for the information that they are so freely giving us in reference to this matter of education. The most important question we have is this educational question. What we want is to know how to train up these millions of boys and girls in this country so that they will make good men and women. We welcome light; and he felt that he ought to say this much in reference to the social and governmental condition of this country, because our school system is in great measure controlled thereby.

The chairman then called upon Professor Meyerberg to say something about the supervision of schools in Sweden.

He said that the schools in his country are under the general supervision of the bishops of the different dioceses. They have almost entire control of the school management, and have to report every three years upon the condition of schools in their districts.

In Stockholm the citizens have emancipated their schools from the control of the clergy, and several cities in Sweden have already followed the example of the capital and instituted secular school organizations.

There are besides about fifty school inspectors for public schools. They are appointed for a term of five years, and it is their duty to inspect the schools in their respective districts according to instructions issued by the government.

It is incumbent on the inspectors carefully to follow the course of the national instruction, to visit in person the national schools in their districts, to procure information about their condition and wants, with a view to their improvement and development, and to lay before the school board and consistory proposals for improvement whenever the arrangements are found to be deficient, carefully to look after the teaching, and to give the teachers necessary instruction and advice as to the method of teaching, etc.

The inspector shall give to the consistory of the diocese to which his district belongs a short annual report of what he has done; also, at the expiration of his term of office, a complete report to the department for ecclesiastical affairs and public instruction, which at the same time must contain a complete review of the schools in the district. These latter reports are printed by order of the department, and distributed among the school board and chapter, and then these authorities shall take such measures as are suited to the various local circumstances and called for by the suggestions and proposals in the reports.

The inspectors receive an annual salary, which is fixed for each period of inspection in proportion to the extent of the district; they also receive an allowance for travelling expenses and board.

Dr. MURRAY, superintendent of education in Japan, said he believed it was well understood as a principle of successful educational administration that a proper inspection and superintendence of schools is the first requisite. There is no other way in which a government can so efficiently and thoroughly advance the interests of the schools as by regular, systematic superintendence and inspection. This principle is well understood in Japan, and is incorporated in the system of education. In order that his explanation of the present system of education in Japan might be more clearly understood, he would preface his remarks by a brief statement of the form of government administration in that country.

The responsible head of Japan is the Emperor, from whom all laws and edicts are supposed to emanate, and to whom all officers are responsible. Under him, as the supreme head, there are different departments of government, intended to administer the laws and regulations that

are made for them, and among these the department of education holds an important place. Besides this general government, the whole country is divided into about sixty different provinces—or, as they are called there, *kens*—in each of which is a local government appointed by the central government and having control of the local affairs of that special district. The government is thus conducted from this centre, and yet in its details is conducted in these different local districts. The administration of the schools is conducted upon this basis:

There are three different kinds of schools: (1) Those which are directly under the control of the central department of education; (2) those schools which may be called public schools, those which are under the control of the local governments more particularly, and which are supported, sustained, and organized by the people among themselves; and (3) private schools, which are established in many parts of the country. In regard to the mode of superintendence and control of government schools for higher instruction in the country, the colleges, and the university which has been established, with the technical schools for various subjects of learning—all these are under immediate government control. The normal schools are under the same control. In each of these institutions there is a government director, appointed immediately by the department of education, who, with the officers under him, has direct charge and supervision of the affairs of that school. He is, therefore, the government representative, holding his place at its will, and liable to removal at its pleasure. He is an officer of the department of education, and is sent to this school to perform special duties. These schools are visited annually; some semi-annually, or quarterly, by inspectors from the department of education. There is a special bureau of inspectors in that department, whose duty it is to see that all government schools are properly inspected and superintended. Officers from that department visit these government schools at appropriate times, and see that their affairs are conducted in a proper manner; and, at the examinations which take place at regular intervals, some one of them is supposed to be present for the purpose of seeing that the examinations are satisfactory, and that the students who pass through them to the higher courses sustain proper examinations.

Then in regard to public schools, what are called public schools, schools which are immediately under the control of the local governments; these are schools of an elementary character. They are established all over the country. There are thousands of them now which have been gradually, within the last few years, established at different points. For the superintendence and care of these schools there is in each one of these local governments a bureau, with an officer or officers who devote their time to the superintendence, care, organization, and inspection of the schools in that particular district. This officer is responsible to the head of that local government, and through him to the educational department at the capital. In that way the inspection

reaches down to all these local governments, and through them to the schools which they have under their charge.

These schools are supported from three different sources. In the first place, the department of education grants an annual allowance to each of them in accordance with the number of scholars which it contains. This allowance is granted on condition that it shall be made to conform to the regulations of the educational department, and that it shall follow out the instructions that are given in regard to courses of study, examinations, and other matters appertaining to these schools; so that the department of education exercises control by the giving of this annual allowance to these schools over the kind of instruction that shall be there given. The second source of support of these schools is the tax laid on the inhabitants of each district. This is usually imposed under the control of the bureau of instruction which is charged with educational affairs there. They arrange with the members of the district in a formal or informal way in regard to the amount of the tax they shall raise, and this tax in almost all cases is cheerfully paid. A third source of income of these schools is the gifts of individuals who are interested in the schools of those particular localities. There are many men in the different provinces who have large revenues and who are greatly interested in the progress of the schools in their different districts, and they give liberally, oftentimes very largely, toward their support and encouragement. With the merchants in cities it is the same way; they are ambitious and anxious that the schools in their neighborhoods shall attain a high character, and are ready to help sustain them by their own means.

Every private school must be sanctioned by the local government or by the department of education before it can go into operation. The plans of study of those schools are usually submitted for inspection, and, if there is anything objectionable in them, it must be changed, or the school is not sanctioned. These are the means by which the department of education in Japan attempts to control and superintend the schools under its charge. He had not mentioned in connection with the government schools that the normal schools are among the most important. There are now seven of these normal schools, one principal one (which has been in operation four or five years and which has sent out many students) and six others. These schools have sent out teachers who are now engaged in many of these local provinces in the immediate work not merely of teaching but of inspecting, organizing, superintending the schools. This work that was demanded of the normal schools was required for the purpose of supplying one teacher for every district, and so for a long time the graduates of these normal schools were taken up as fast as they were sent out, and put at work in these different localities in organizing schools; showing the old teachers how they should teach, how their classes should be organized, how new kinds of books, maps, apparatus, etc., should be made a part of their instruction,

and really acting as trainers of these teachers in the different districts. For the better accomplishment of this purpose they frequently brought together the teachers of those different localities who could easily be assembled and submitted them to a regular training in a manner similar to our American teachers' institutes or local normal schools. The old teachers who were desirous of learning would gather together and spend a month or more under the instruction of one of the graduates of the normal school, who would put them through a regular course of instruction and show them how to teach. This system was of immense service in developing the schools much more rapidly than could have been done in any other way. Looking back, it seems astonishing that in four years from the time that this system began in Japan there is so good a system of education spread over the whole country and under reasonable superintendence and control.

Dr. Murray was asked if teachers of private schools are subject to an examination. He replied that he thought not. They are only required to submit to the programme of instruction and the regulations of the school.

He had a table of statistics for the year 1874, from which he would only take time to read a few figures to give some idea of the real educational status of Japan. There are now of elementary school districts in the empire of Japan, *i. e.*, school districts in which there already is or is to be established one elementary school or more, 45,418. He supposed these districts may have increased 25 per cent. during the past year. The increase during the year 1874 was about 3,000, while the number of schools in the empire of Japan in the same year was 18,712; an increase for the year of 10,710. It is estimated by the minister that the number of schools in Japan at present is fully 30,000.

Dr. Murray appealed to Hon. F. Tanaka, vice-minister of the educational department of Japan, who was present, as to the accuracy of this statement, which was verified by that gentleman.

The whole number of pupils in these schools during the year 1874 was 1,725,107, an increase for that year of 397,155; and it is believed that the number of scholars estimated in the statistics for 1875 would not be less than 2,000,000. Thus it will be seen with what rapidity these schools are increasing in number, and are gathering in additional pupils.

The query was then put as to whether education in Japan is in any way compulsory.

Dr. Murray answered that it is not, as yet. They speak of making it compulsory in that country; and, in common with all nations who are looking forward to the advance of education, he thought it is looked to by the best friends of education as the means which will be resorted to as soon as possible.

He was asked if the missionary schools fall in with the general method. He replied that they are not named with these government schools,

being referred to under the head of private schools. They are efficient in a great degree. A very great deal of service has been rendered to Japan by the education which is given by those schools.

Being asked what proportion of the teachers are men and what women, he answered that the number of women teachers in Japan is very small. The whole number of teachers in Japan is given here to be 38,365, with an increase in the year 1874 of 15,859. Of these teachers he could not give the exact proportion without a little computation, but he could give the number of teachers employed in the schools, public and private, male and female, which would give some idea. In the public schools, that is, the schools under the care of the local governments, the number of teachers is 32,556, and the number of female teachers is 457.

He was then asked the present population of Japan; he answered 33,579,909. He said in the private schools the number of male teachers is 4,398, and the number of female teachers 210. The school age is between 6 and 16.

The chairman then called for voluntary speeches, of five minutes in length, on the subject of supervision and inspection.

Mrs. E. S. Carr, of California, inquired of the foreign gentlemen present whether educational journals are maintained in their respective countries at the expense of the government.

Mr. Dorna said, in his country there was not only a report made yearly by the minister of public instruction, but they also had annals of education published weekly, under the patronage and direction of this minister. This publication was founded by President Sarmiento some time before he was president, when he was director general.

Dr. da Motta said, there are some educational magazines in Brazil, but they are not published by the government. They are published by private associations and publishers.

Mr. Dorna said he knew there are some in Chili, but did not know the exact number.

Dr. Murray said the educational department in Japan publishes semi-monthly information on the subject of educational news, statistics, and other matters, which is sent gratis to various parts of the country. Journalism in Japan has had a remarkable development, and a very large number of the English newspapers of Japan are conducted by men of fine attainments, who are devoted to education, and who give it a great degree of prominence in their papers.

The chairman declared the conference adjourned until 3 o'clock p. m.

FOURTH SESSION.

PENNSYLVANIA EDUCATIONAL HALL,
CENTENNIAL GROUNDS,
Philadelphia, Pa., July 18, 1876—3 p. m.

The conference was called to order at 3 o'clock p. m. by Vice-President Phelps.

The chairman announced that the first topic for discussion was pedagogical museums or cabinets, and introduced Dr. J. George Hodgins, deputy minister of education, Ontario, Canada.

Dr. HODGINS said he had hoped that the representative of the Russias would have been called upon to open this subject for the afternoon meeting, because, in point of fact, that is the only nation, so far as he knew, that has especially and formally established a museum of this kind, and has given to it this particular designation. He had occasion to examine some of the specimens of the collection from this museum, (which are here in the Exhibition,) and from them he had formed an opinion of the great value, extent, and variety of the articles shown in that museum. Now this question of museums, popular and otherwise, is quite a new thing. In England, the large and famous British Museum has long held the first place among the popular museums of Europe. Those in other countries are also noted and distinguished, but it was not until the great gathering of the nations in England in 1851 that the idea took hold of the public mind that it would prove an important educational factor to popularize these museums, to give them that kind of popular character which would render them a great school of instruction, not only for teachers, but for the mass of the people, young and old. Although I speak chiefly with reference to England in this matter, I mean Canada also. We saw that in England, immediately after the great exposition of 1851, the British government turned that exposition to great practical account; and out of the collection gathered in that exposition formed the now famous South Kensington Museum, which is not only one of the most interesting in the world, but it is to the teacher and all persons engaged in popular education the most instructive. Those who have had the good fortune to be there remember with pleasure the immense variety of things that are there brought under notice; not only such as have to do with the specialty of the teacher's work, but with various professions and callings. In that museum there is a great variety of school appliances, and an immense mass of material which it is supposed the teacher can use with more or less effect. There are departments of special interest and of special value. Those who take an interest in natural history, and have read the works of Frank Buckland, will enjoy a rich treat in going into that department of the South Kensington Museum with which he is connected, and in seeing the extraordinarily beautiful col-

lection of fish which he has colored after nature and silvered and burnished with gold so as to bring the life-like reality of nature itself before the eye of the teacher.

There is one thing connected with the South Kensington Museum which strikes the visitor as one of its chief peculiarities. In this respect the contrast between it and the British Museum is very marked indeed. Those who have been at the British Museum will remember that there is in it an immense mass of the most interesting material, so immense that it wearies one even to look over the catalogue, and to classify it in one's mind; but although the variety is very great, yet the collections are arranged with so little regard to beauty that the excessive plainness of the whole strikes you most painfully. But when you go into the South Kensington Museum, the first thing that strikes the eye is the beauty both of the building itself and of its interior fittings. Even if everything were taken out of the building, you would see what an exceedingly beautiful structure it is, both outside and inside. Then you go into room after room, and you see that the mere fittings of the rooms are beautiful, and that their style and proportions are varied for the purpose for which the room is designed. And when you come to examine the contents of the collection in this museum, you will find that they are artistically arranged in the most satisfactory manner possible. Thus every department is not only beautiful in itself, but each separate detail is studied so as to make the whole arrangement attractive. The educational features of the museum seem to be inexhaustible. There is scarcely a department in the teaching art of which you will not find therein a fitting representation. I only refer to this collection to illustrate the fact that the public men of the present day—statesmen, leaders of public opinion, and educators—seem to be so far impressed with the value of these great collections of educational products and appliances in every department of science, that you will now find in many of the large towns and cities of England most valuable and beautiful collections. This South Kensington Museum is further made available so as to encourage as much as possible the study of the arts and art displays in the cities and towns of England. Those connected with the museum will, if you desire it, take you into a suite of rooms in which is arranged in complete order a set of cases containing, as it were, an epitome of all the cases in the museum. They call them "typical collections." With a view to give the greater value and interest to the local exhibitions of art in the three kingdoms, arrangements are made to send one or more of these useful collections to each town or city. When a set of these typical cases, containing so many beautiful things from the South Kensington Museum, is added to the local collection, it makes a very attractive exhibition indeed. In that way the public interest in such collections is constantly kept up in England.

Now, the purpose which we had in Canada was, though at a humble distance, to follow up the great idea of the South Kensington Museum.

One of the most distinguished statesmen which England has produced, and whose name is well known in this republic, was one of the first to give his hearty support to the establishment of our educational museum. I refer to the late and lamented Lord Elgin, whose services in India and China will not soon be forgotten by the British people.

Our educational museum at Toronto combines a twofold character: It is as complete as we can make it, with the small grant at our disposal, in things relating to the profession of teaching. Every text book that we can procure in England and America we endeavor to get. These form an exceedingly valuable collection, and are very instructive to any teacher who may examine them. Then there is another important department of the museum containing samples of various kinds of instruments, in the form of maps, charts, and apparatus which is used to illustrate school instruction. These we have procured in this country, in France, Germany, England, or elsewhere. Then in regard to higher departments of culture, (which is not so essential, but which is necessary, nevertheless, for the complete education of the teacher,) we have a typical collection of all the old masters in painting, including the eminent painters of Italy, Belgium, and the Netherlands. Everything of that kind that we have been able to obtain is there, getting only, however, one or two of the most noted paintings of each of the famous masters of Europe. There is another important branch of our museum to which I shall refer. There is a large room (and one of the most interesting) which we have chiefly devoted to products of the excavations at Nineveh, under Mr. Layard, who is so famous for his explorations in these old ruins. That room contains a collection of Egyptian figures and some of the slabs which Layard obtained at Nineveh, also a winged bull and winged deities, as well as other objects of interest. The peculiarity of this collection is that, so far as we can learn, we have reproduced the coloring of these ancient and celebrated slabs as they were originally found. There are two or three of them of special interest in illustrating and thus bringing home directly to the public mind the truth of the Holy Scriptures. There is one slab taken from Nineveh illustrating the besieging of Damascus by King Shalmaneser, as stated in the Bible, in which the taking of that city is pictured with wonderful and almost grotesque beauty. The details of the dresses of the soldiers, their bows and spears, and the various apparatus of war are there depicted in brilliant colors. The whole delineation is most effective. Of the contents of this museum, the casts relating to the history of Egypt are of very great interest. Another department is comprised entirely of celebrated studies in architecture; that is, casts of parts of noted cathedrals and buildings, which were obtained in London and Paris. One large room, with its galleries and corridors in the upper part of the building, is entirely filled with casts of statuary and busts of famous men of antiquity. And then, to bring home to our people the most noted men in our own history, one room is devoted to Canadian history, and the

whole of another large room is filled with busts of the most celebrated men in English history. This collection is very extensive, and comprises all the famous men whose names occur in the history of England for hundreds of years. We have a few things here at Philadelphia which were brought from our museum, and which may appear to you incongruous in connection with a collection of school apparatus merely, but they were of very great historical interest, and therefore we thought it better to bring them. I refer to the collection of the great seals of England. You will find in the education court of Ontario a complete collection of all these seals, from William the Conqueror to Queen Victoria, inclusive. As a study of real art for 800 years, the collection is most instructive to the teacher. In William the Conqueror's time you will see how exceedingly modest he or his artist was in designing and engraving the great seal of England of 1066. Coming down through the Stuarts, you will find elaboration rarely dreamt of. But Queen Elizabeth seems to have exhausted the whole art of decoration in her time. Her seal is without exception the most elaborately elegant. It represents her on her throne and on horseback in very gorgeous array. Then when you come down to the time when the King of the Roundheads, Cromwell, ruled in England, you will find the whole of this decorative art swept away, and on the face of the seal of the Commonwealth of England you will find the unadorned House of Commons as the ruling power, and on the other side simply a map of the three kingdoms. And so on. It is a most instructive collection, not only from its completeness, but from the history of the art which in that silent way it illustrates. As to the value of these collections, I have not said anything. There are, however, with us, as with you, thousands of people who will never leave their own country—most of our people will never be able to see elsewhere anything approaching a collection of that kind; therefore we thought it all the more necessary to make such a collection, and to make it as full and complete a museum, both in matters relating to education and relating to art, as it was possible for us to do. Those who have been at our museum from time to time within the last twenty years have often remarked that we have come nearer to the standard of the South Kensington Museum than any other educational collection in America. The grounds connected with the building also have been kept for upward of twenty years as neatly as possible. Thus the whole object has been not mere display, but the promotion of æsthetic culture in such matters on the part of teachers and others. We have felt as a matter of fact that in that way only can our people have the advantages of such culture; and it is necessary to impress upon the public mind as deeply and strongly as possible, through the teachers, the æsthetical principles of art, and especially of the arts relating to their own homes and daily life; and therefore time and labor have been expended for this purpose. The collection in our museum itself and its surroundings have in all those respects been used as a means of elevating the taste of the teachers, and, through them, of the pupils and people of our coun-

try. I am sure that a visit to our collection at Toronto by any teacher would be amply repaid. I hope that it is but a type of what may become general in our country, when a proper appreciation of art and educational museums shall have become universal among our people.

The chairman here asked Dr. Hodgins if he would be kind enough to give the conference some approximation of the cost of that collection.

Dr. Hodgins replied that the cost need not frighten the most economical. The whole collection had been the growth of years, and the grant has never exceeded \$1,000 a year. We have had that steadily for about twenty years, and have added to it every year, so that the burden has not really been felt by the country at all.

Dr. Hodgins was asked how natural history is represented. He replied that there is, for instance, a large collection of the birds that are found in the country, arranged on either side of a room—that is, the perching birds on one side and water-fowl on the other side. A few fish and skeletons are also arranged in the same room.

He was then asked to what extent the depository at Toronto had been encouraged by donation and otherwise by the schools of the province. He answered that it had received few or no donations; but that it had contributed so largely to the schools, that the department had persons employed in reproducing the maps displayed on the wall of the Canadian educational court here, and that it also supplied the chief part of the apparatus.

The Ontario schools, he said, are now getting well supplied from the depository with all the necessary appliances for education. The collection of articles in the depository is very large indeed, and is kept up at no expense to the country, since the depository pays its own way. The province itself bears one-half the cost of the articles supplied to the schools; the net cost to the schools is therefore very little indeed.

The question was then asked as to what help is given by the educational department to the schools of the province in regard to books and apparatus. Dr. Hodgins said the legislature has laid down this general principle, that it would make grants to the schools in money, in the shape of trained teachers, or in books, maps, or apparatus, and according to the demand it was proposed to make grants in any of these ways. In regard to the supply of maps, apparatus, and books for libraries, etc., if those interested send up \$10, the same amount is added to that amount, and \$20 worth of maps, or of prize or library books, is sent in return. Thus to the schools the cost of these things is really only one-half; and it is even less than that, because these things are furnished to the schools at the cost price, including only the expenses of management, so that an ordinary map with the roller would cost the school \$2, the selling price being \$4.

Dr. G. Seelhorst, from Germany, was the second speaker. He spoke in the German language, and his remarks were interpreted by Prof. O. H. Pluggé.

Dr. Seelhorst said he had willingly complied with the request of the committee on organization of this conference to say a few words about museums of industrial art in Germany.

Being officially connected with the Museum of Nuremberg, he would limit his remarks to this institution, which was universally known as very complete.

The Nuremberg Museum represents in its different departments all branches of industrial art. Knowledge of museums of industrial art has been greatly advanced since the first universal exposition of London. Many of the best men in Germany had long felt the necessity of establishing schools of art in connection with industrial museums, though the plan, when first proposed, met with much opposition, as men of great influence had doubted whether it would succeed at all.

Among those who were most earnest in advocating the founding of museums in connection with schools of industrial art, he mentioned Carl Semper, whose efforts were well known both in Germany and in England.

The success of the South Kensington Museum was so apparent as to need no comment and to decide the question as to the desirability of similar collections for the use of schools of industrial art.

In the speaker's judgment, the Imperial Museum of Industrial Art in Vienna contributed largely to the success of the Vienna Exposition in 1873.

The doctor said the foundation of the Nuremberg Museum dated from 1867, but as the director of the institution died shortly afterward, it had been discontinued for a time, owing to the want of a competent manager.*

Since 1872 the Nuremberg Museum had made great progress. Original examples or true copies of articles representing all periods and nations are to be found there collected in twelve separate groups. Every facility is afforded visitors to examine the successive steps in the improvement of models and patterns. The library of the museum contains the necessary books of reference and works on various industrial branches.

A bureau of information has been established in the museum to aid the investigations of visitors and students. Pupil apprentices are also admitted, to whom instruction is given during eight months in each year.

* The following account of the collections of this museum, as they existed in 1870, is given by C. C. Perkins in an article on American art museums, published in the North American Review, volume III: Here are pictures, engravings, tissues, faïences, goldsmith's work, medals, and seals, the most remarkable of which have been reproduced in a series of drawings, photographs, and engravings, already 100,000 in number; 60,000 tracings and drawings illustrate secondary classes of art, (as, for instance, all forms of the bed from Roman times to the present day,) and the history of eminent persons is followed up through portraits, coats of arms, seals, and medals. At present such laudable enterprises are subordinate to the purchase of the masterpieces of the past, which are becoming more and more rare. The directors wisely spend their available funds in this way, because they know (to borrow the words of M. Muntz) that *when America shall enter into the lists they will no longer have the opportunity.*

The museum was liberally patronized by the public, and the number of visitors is nearly fifty thousand a year. He then called the attention of the conference to the exhibit of the Nuremberg Museum in the Memorial Hall, and to a weekly paper published by this institution for the discussion of industrial science and the methods of teaching the same most successfully.

Dr. F. MIGERKA, chief commissioner for Austria at the Centennial Exposition, was then introduced. He spoke in the German language and at the conclusion of his remarks they were interpreted by Prof. C. H. Pluggé. Dr. Migerka said he had intended to speak about museums of industrial arts, but as Dr. Seelhorst had so ably treated this subject, he had decided to say only a few words, and those about public instruction in Austria.

In his country institutions of learning are divided into three groups, primary, secondary, and higher schools.

With regard to primary schools, he said that every community which has 40 children between the ages of six and fourteen years is obliged to establish and support a primary school, and children are compelled by law to attend school until they are fourteen years of age. Americans, he said, think this compulsory system probably cruel and unjust, but in Austria and most other European states it is considered humane and beneficial. The doctor said it is a well known fact that parents do not always appreciate the great importance of educating their children, and in such cases make special efforts to keep them away from school, and the children are too ready to obey in this respect.

Since it is the unquestionable duty of the State to educate the people, every effort is made by his government to execute the compulsory laws to their fullest extent.

In the Austrian primary schools the pupils receive a thorough instruction in the elementary branches. Teachers make it their special duty to cultivate independent mental activity, without which pupils are mere machines.

The higher institutions of learning, he continued, admit young men who desire to prepare for higher professions. The gymnasia and Real-schule form the bridge between primary and higher education. In these secondary schools the classics, modern languages, mathematics, and natural sciences are studied for nine years.

In regard to teachers, he said that in Austria the calling of a teacher is considered a sacred one. Teachers are generally appointed for several years, and often for life. They employed almost exclusively male teachers in Austrian schools. He referred to differences between the opinions prevalent in Europe and those common in America in regard to women as teachers. In Europe, the impression is that the influence of male teachers is greatly superior.

Before concluding, he said he would state that the Austrians endeavor

to profit from other nations by comparing different systems and adopting what they believe to be beneficial. He had been charged by the minister of public instruction to study the American school system, and to report upon it after his return to Austria. He thought Austrians could learn very much from Americans, who had made such progress in so short a period.

The chairman announced that voluntary speeches were now in order, although there was another subject to discuss this afternoon.

Dr. J. W. Hoyt, of Madison, Wis., said that he would have been glad if the subject of pedagogical museums could have been more pointedly and particularly presented. He had been deeply interested in all that had been said here, and in the interesting report which has been made of foreign museums of a more general character. But it is a matter of great importance that there should be established in each country at least one great comprehensive pedagogical museum, such as they have established at St. Petersburg and have carried forward to a very complete condition; such an one as is represented here by the Russian educational department, where they have brought together samples of the various articles of apparatus, specimens of the text books that are used, specimens of the articles illustrative of natural history, school furniture of every description, representations of the best kind and poorest kind of work done by the pupils in different classes of schools; such a collection as would be, properly speaking, pedagogical or professional, for the purpose of informing teachers and school officers, superintendents, and all others interested and engaged in carrying on the school work of a country of what is done in all these different schools and branches of education in other countries. He hoped to see, as one fruit of this great exhibition here and of this bringing together of the articles in the educational department, a museum of this character reestablished at Washington in connection with the National Bureau of Education. As a fruit of the Vienna Exhibition, the Austrian commissioner will inform you that the minister of public instruction commenced the collection of a museum of this kind. The speaker stated that he was at Vienna in charge of the educational exhibit of the United States, and that he had knowledge of this fact, that the minister was deeply interested in this matter, and represented to him the importance of the establishment of a pedagogical museum at Vienna in connection with the ministry. The American representatives, so far as they could procure the privilege, presented gratuitously such articles as they took there—large cases of books, specimens of furniture and apparatus, all the means of illustration and teaching, together with the work done by our pupils in the schools, and various means of forwarding education and pedagogy, to begin the work of establishing this museum. So were gathered from all the nations there represented portions of their collections. He urged the beginning of such a work here to-day, and appealed to the educational men of the country to carry it through.

Rev. S. J. Travelli, of Pennsylvania, was rejoiced to hear the remarks of the former speaker. He had been to the Bureau of Education at Washington several months ago, and found it in a small building with no adequate opportunity for displaying its valuable material. There is nothing more practically important that will be discussed at this meeting than this question. From all parts of the country there is a strong disposition to send material of this kind, and he was satisfied if there were a suitable place provided, it would go there by the car-load.

The chairman said that he was glad to inform the conference that the establishment of an educational museum is likely to be forced upon our Government by the liberality of the foreign nations represented in this great exhibition. [Applause.] He was informed that very liberal contributions have already been tendered by the representative of the government of Austria, and, if he was not mistaken, by the representatives of the governments of Japan, Belgium, Brazil, and the Argentine Republic. He desired that these contributions might form a collection so large as to require immediately a large building at the national capital for its care and display.

He thought something of this kind needful to awaken Congress and the Federal Government to a proper appreciation of the relation in which education stands to the national welfare and progress. He thought that many Americans do not appreciate the importance of the doctrine that a free government has its only safe foundation in the intelligence and virtue of its people. With six millions of illiterates in this country at the present time, and with perhaps as many more who are but a few stages removed from illiteracy, he thought that the great concern of this nation in the future should be to address itself with all its power and all its influence to the proper education of the people; and if the discussion of this great question shall awaken the minds of the representative educators here to the great importance of establishing these museums, it will have accomplished a work entirely worthy of all the efforts which have been made to bring this conference about. And here he desired to return to the gentlemen representing foreign governments the thanks of every true American educator for the valuable information and for the inspiration which they have afforded on this occasion. [Applause.] It cannot otherwise than result in the greatest good to the cause of education in this nation.

The chairman announced that the conference would proceed at once to a brief consideration of the topic of technical education, and inquired whether Dr. Reuleaux, of Germany, was present. Dr. Reuleaux not responding, the chairman called upon Dr. J. M. Gregory, of the Illinois Industrial University, to open the discussion.

Dr. GREGORY said he regretted that Dr. Reuleaux was not here to begin this discussion, since Germany by right may claim precedence in this work of industrial education—if not for having started it, (because

there is a little doubt in this matter,) for having carried it forward to a greater extent than any other nation.

It would not be expected of him to give any account of the origin of industrial education, or technical education, as it is called in the Old World. There is a little difference in the use of terms on this subject in America and in Europe. The Europeans use the term "technical education" chiefly with reference to schools or establishments for the teaching of persons who are to be mechanics; and in this department there are schools in almost every industry. In Switzerland there are schools for watch making. In some countries there are schools for straw plaiting, and schools in all departments of industry where an art can be learned better by the aid of teachers than it can be learned by ordinary apprenticeship, and, indeed, schools for learning many things that in this country and elsewhere have been commonly learned by apprenticeship. They use the term "polytechnic education" as referring to higher technical education, and mean by it the study of the sciences as applied to the industries, or, as we say, of applied science. In this country we have had for many years what we have called "polytechnic schools," and in almost all the schools that are of this class we design to do what is attempted by the polytechnic schools of Europe, with the exception that many of our polytechnic schools are devoted to a single branch, teaching perhaps engineering in one of its branches, and not teaching the whole round of the sciences in all their applications. We have, however, some true technical schools such as they exist in Europe. Still, these are mainly schools connected with reform or correctional institutions where children picked up from the streets, orphans or vagabonds, or criminal classes of children, are taught some trade. We have had also some benevolent institutions, where children have been taught in very much the same spirit and the same way that Pestalozzi began his institution, for the purpose of teaching children to be self-sustaining by teaching them some branch of manual art which they may practise when they come to be men. Ordinarily, however, in this country we understand the term "technical education" in precisely the same sense in which they use the term "polytechnic education," meaning applied science—science applied in engineering in all its departments, in architecture, in agriculture, horticulture, or in any other department where science can be brought to the aid of industry.

He could not now say what were the first polytechnic schools on this continent. We have some that are quite old, like the Rensselaer Polytechnic School, situated in Troy, N. Y., the polytechnic school in this city, and the polytechnic school in Brooklyn. Years ago a conviction took very strong hold of the public mind before it did of the minds of educators proper, that education could do something for the advancement of the arts, that many of the arts could be much helped by scientific instruction, particularly by instruction in those branches of science on which improvements in those arts depend. Hence began a movement, chiefly

outside of the teachers' ranks, demanding the establishment of schools of industrial science. The institution with which the speaker is connected takes the name given it by the legislature of the State, of "industrial university." It is similar in its character to the polytechnic university at Munich, in Bavaria, with the exception that it adds to it the course in literature, the ordinary college course. The term "industrial" is not used in this case in any such sense as we have used it in the industrial schools of the country, which are schools of manual labor, or schools for the teaching of the trades, but was used because the originators of the movement, the men who petitioned Congress for the grant of lands for this purpose, demanded that it should be so named that there could be no mistake about it; that all the institutions to be organized under this grant, as far as they could manage it, should be especially pledged to devote themselves to the advancement of human industries—not by the teaching of these industries as manual arts, but by teaching the sciences by which they may be advanced. The movement of which he had spoken, and which was carried on very largely outside of the educational ranks in the country, finally reached the floors of Congress in an imperative demand for the establishment of schools of agriculture, schools of mechanic arts, in short of polytechnic schools, of such a character that they should teach prominently all branches of the sciences for the education of the captains and leaders of industry. These petitions came to Congress from the year 1851, when the first State memorial was prepared and sent forward, and the movement from that time gained strength, although in the first place it received at the hands of Congressmen no attention whatever. To use a common expression, it was "whistled down the wind."

In 1860 a bill was passed for the establishment of such institutions of learning on a national basis, to be sustained by a national grant of public lands. This bill was vetoed by the then President of the United States, Mr. Buchanan. It was passed again in July, 1862, was signed by Abraham Lincoln, and became a law, granting an amount of public land equal to 30,000 acres for every member of the Senate and House of Representatives from each State, giving to those States in which there were still vacant public lands the lands themselves, and to other States (like the Eastern States here) that had no Government lands, the scrip for these lands, to be sold or located in the western Territories. These grants were immediately accepted by nearly all the Northern States, and ultimately, he believed, by all. At the close of the war the grants were renewed, or the privilege of accepting them was renewed, by a new act of Congress, and they were accepted largely by the Southern States also.

There may have been more, but he knew of at least three agricultural colleges that had attained some prominence before this grant was made, two of which died for want of support. There had also been established several polytechnic schools, chiefly schools of civil engineering, some-

times with schools of architecture, or a smattering of it, and of mining engineering connected with them, but none of mechanical engineering that he knew of. After the grant was made institutions began to spring up in all the States in which the grant was accepted, and these institutions took their character very largely from the wants of the several States. In the New England States, where the manufacturing industries predominate, the schools developed chiefly into scientific schools, like the Sheffield School, and into polytechnic schools, like the Institute of Technology in Boston, and into agricultural schools, of but small growth, however, except in the case of the Agricultural College of Massachusetts, at Amherst. In the Middle States they took more of a mixed character, and very frequently by the addition of large funds donated by the State, or by the munificence of private individuals, as in the instance of Cornell University, they developed into a university and a polytechnic school combined. He believed the opinion entertained by gentlemen in Europe is that the agricultural colleges should always take this form. Baron Liebig, in Munich, told the speaker that he had always been of that opinion, *i. e.*, the institution has been most successful where the two are combined, as at Halle and Bonn, and some other places in Europe where an agricultural school exists in connection with a university. In this country we have attempted to develop the two together for reasons which he would not now enter into. These institutions in this country have in almost all cases attempted, at least at the outset, to combine the two sides of technological education, the practical and the theoretical. In some the practical instruction is developed only in so far that a certain amount of chemistry is obtained in the chemical laboratories. In others practical instruction in physics is given in the physical laboratories. We do not call this real technological practice because it is purely scientific. Some schools taught the practical side of mechanic art, but found it difficult and abandoned it. It is difficult; he thought that everybody who has tried it will say that there is no more difficult problem connected with technological education in this country, and he might say in Europe, because there are institutions there, like that at Carlsruhe, which have tried and abandoned it. It is difficult to manage a shop so as to make it pay its expenses; so difficult that many persons are ready to abandon it as utterly impracticable. It is difficult to obtain a man who shall be at once a scientific man, able to instruct in the applications of science, and a thoroughly practical man, understanding his art. That is almost an insuperable difficulty, and very few have overcome it. But he was glad to say that in quite a number of institutions there has been such a commanding sense of the importance of maintaining the practical in connection with the theoretical, in order that the education given shall be found capable of being brought into the field of the industries, that the attempt will not be abandoned; so shops are kept for the manufacture of machinery and models of machinery, where the students who are taking courses in mechanical engineering take also shop practice, just as

the student of chemistry takes laboratory practice, under precisely the same conditions. Having mastered the principles of mechanics, and having mastered mechanical drawing, they go to the shops to learn the applications of these; not to learn a trade, but that they may master the practical difficulties that must be met by those who carry into action their education as inventors or as managers of manufacturing and engineering enterprises. Although it is a matter of great difficulty, the success that has been attained in three or four institutions that have been named is such as to warrant us in believing that it is worth all it will cost. The practical instruction in the agricultural and horticultural schools of the country is also difficult to manage, but happily of less importance, inasmuch as the greater part of the students who go to these schools come directly from the farms, having already mastered the manual processes. But a sufficiency of this practice, it is believed, can still be given to enable them to manage whatever new problems or processes may be needful for them in the applications of their education. Technological education is now making in this country large strides, he believed, although there is still among educational men a degree of doubt, if not of positive disbelief, in these schools. He had heard since he had been in this city that a body of men, who ought to know better, gravely discussed the question whether technological education is a possible thing. After all that you have done, gentlemen, in Europe, and the much that has been accomplished in this country, it is unnecessary to debate that question to-day.

In reply to a question asked by the chairman as to whether this body of men referred to consists of educators, Dr. Gregory said that it does not.

In a conversation a few days ago, participated in by some leading educators of this country, he heard the whole system of polytechnic education spoken of with supreme contempt, as being a plan of education that in itself is a myth, and designed only to tickle the fancy of certain practical men in the country who had been asking that something should be done by our colleges and schools for practical education. Their argument is this: The most practical thing in the world is brains, and the most practical education is that which simply educates brains, gives brain power; and all that can be asked or expected of schools is that they shall give the utmost possible discipline to the mind. They still adhere to the old theory that discipline is the sole product of education, whereas it is only one of the two factors; and they beg the question in the assumption that technological studies cannot give as much discipline as other studies.

But, in spite of these views, he believed, judging from his own standpoint and from association with men conducting these institutions, that the failures in technical schools have been few in comparison with the number of experiments, and that the success already attained is such as justifies us in the promise and prophecy of a large and brilliant fu-

ture. It has come to be believed by the men who manage the industries of this country, men who have in hand the great manufacturing enterprises that are represented in this world's fair, that education, or science, rather, has very much to do with the progress and final success of the industries. The argument can be very easily sustained. One who will walk through yonder Machinery Hall, and continue his walk along the avenues of human invention and art triumphs which fill the Main Building, will have passed in review the most magnificent polytechnic institution that the world ever saw [applause] and the most convincing evidence and magnificent proof of the extent and power of science as usefully applied to industry that can possibly be given.

Science helps art. It has helped it to these results; and to-day science bases its strongest right to exist and its noblest claim to public confidence on what it is showing of its power to help the brain and the hand of man in the production of human wealth and the multiplication of human triumphs over brute nature, barbarism, poverty, want, and crime.

Dr. KENNEDY, president of the Pennsylvania Polytechnic College, by request was introduced by the chairman, and said that he should not attempt to follow the learned speaker from the West in connection with this subject. All have been charmed by him; but he felt sure that no one in the audience enjoyed his remarks so much as himself, (Dr. K.) They might not agree fully on all points, but he did not stand here to discuss the question or to criticise what had been said.

In Pennsylvania, the subject in question is one which has been, perhaps, understood a little differently than elsewhere. We have our own nomenclature, and we have our own system. The first movement in this direction was begun in 1848, and since that time the interest in technical education has increased. But what is meant by the terms "technical education" and "industrial education," as understood in the State of Pennsylvania? By "industrial education" is meant the education of the artisan, the education of the youth who is to work in the machine shop, in the moulding room, in the draughting room; who is to construct the edifice, whether as a carpenter or as a mason. An "industrial school" is one in which education is carried, so far as the sciences are concerned, to a certain extent only. It is enough to teach drawing both from the flat and the round copy, and from natural objects, arithmetic, algebra, geometry, and plane trigonometry; mathematics forming the basis of all the other instruction. Those are all the landmarks he would trouble the conference with. By the term "technical school," in Pennsylvania is meant a school in which instruction is given to those who are to direct the great industries—to the civil engineer, the mechanical engineer, the engineer of mines, the architect, the metallurgist, and the chemist. If you have a collection of such technical schools it is termed a polytechnic college. That is the way in which this matter

is regarded here; and it is similar to the way in which it is regarded abroad. Take, for example, the very school referred to by Dr. Gregory, the excellent polytechnic school in Carlsruhe. There these various technical schools combine to make up one of the grandest institutions in the world, as they do to a certain extent in what is called the Central College of Arts and Manufactures in Paris, which is another example of what we term here a polytechnic college.

The speaker would like to add a single word as to the great difficulties to be met in technical education, and by that you understand is meant the education in technical schools; and to you this, perhaps, is the most practical point of the whole subject. Why? Because those of us who are devoting ourselves to technical education look to you to supply the want. You have heard from our learned friend from Austria, whose remarks we were all so delighted to hear to-day, something about those schools which are termed *Realschule* in his country. They have no representatives here. They are the feeders to the polytechnic schools of Europe. We have no such feeders, and it is for you that are here to give fashion and direction and force to the system of public education. It is for you to devise means by which this shall be done. We have an abundance of schools in the country where young men are prepared for the ordinary classical course of our colleges. They are the feeders of these excellent institutions. But where are the feeders to the *technical* schools of America? We do not have them; and this kind of education suffers to-day, waiting for the provision which has been mentioned. It was not for him to point out how that want shall be supplied, for he was addressing those who understood that portion of the subject much better than he. But this is a want, a great educational want, perhaps the greatest educational want of the country at this time. He feared it to be such. Whether the remedy should be sought in including in the instruction of the technical school such studies as shall connect it with the public high school, or by increasing the curriculum of the high and the grammar schools, was a question which he thought the conference should consider.

The conference then (at 5 o'clock and 40 minutes) took a recess until 8 p. m.

FIFTH SESSION.

JUDGES' PAVILION, CENTENNIAL GROUNDS,
Philadelphia, Pa., July 18, 1876—8 p. m.

The conference was called to order by Vice-President Phelps at 8 o'clock p. m.

The chairman announced the first business of the evening to be the consideration of the question of a permanent organization for the international educational congress, and called upon Hon. John Eaton, Commissioner of Education, to open the discussion.

Commissioner Eaton said that an extended discussion seemed hardly necessary upon this topic. It is a topic on which we each have an opinion, and it is chiefly desirable that we should express that opinion. We have had the experiences of these conferences that have occurred since yesterday. He thought they had left the impression on each mind that there is in an educational congress of an international character a capacity, a possibility, of furthering the interests of education throughout the world. This is the day of international communication, of ready intercourse between different nations, over continents and under seas; and, in spite of the difficulties in the way of these congresses, we have a large number of them already organized relating to great leading interests. Large numbers of good men are endeavoring to inaugurate the era of peace. They often communicated with him, and he might say here what he had so often said to them, "Yes, gentlemen, God speed you, but before the time of universal peace can come the schoolmaster must be abroad over the whole earth." [Applause.] Then Godspeed to all these great congresses upon any of these great ideas. Be it the promotion of peace; be it the promotion of prison reform; be it the promotion of the codification of international laws; be it medical science, meteorological science, or sanitary science, God speed them all; but unless it is possible to go back and have some general agreement upon the subject of education; unless education can reach the human mind in its various conditions and nationalities and develop the reason and the conscience, so that the higher powers of man will be exercised in the place of the lower, a sense of right controlling passions and appetites, the dawn of the day when reason and conscience and God shall receive cordial obedience among men is still far off, and if upon other subjects men of various beliefs and of various nationalities can meet and confer to advantage for the promotion of these great purposes, why not upon education, this primary and most essential subject? Educational statistics have been considered in several international statistical congresses and some very able reports have been made. A partial translation from one of these we have published, and he thought it a general belief that there are certain elements of statistics in describing which a common nomenclature could be adopted throughout the civilized world, upon which comparisons may be based which shall be a better measure than we have yet had of the comparative intelligence, position, and progress in this respect of different nationalities.

As a means of bringing this discussion definitely before the conference, he moved, as the sense of this conference, that it is expedient to inaugurate measures by which there may be organized a permanent international educational congress.

The motion was seconded by Dr. Harris, of St. Louis.

Hon. John Hancock, superintendent of city schools at Dayton, Ohio, said he did not think we need hesitate a moment in admitting the importance of such an organization, and that, therefore, the question

scarcely needed any discussion. But if we are to have such a congress, it is very evident that it will require time to perfect the arrangements for it so as to make it of the greatest value. He had hoped such a congress would be held during the Centennial Exhibition; but he supposed that the Commissioner of Education found that with the time given it was impossible to arrange for such a congress as we would all be glad to meet. We have had such evidence of the value of a congress of this kind that it is scarcely necessary to discuss it. He knew all have felt that a vast deal of information has been derived from our friends from foreign countries which we should hardly have obtained in any other way. He felt that a congress of this sort ought to be made up of the foremost educators of every country, and especially of the United States, which professes to be doing so much for the general diffusion of knowledge, and not, he thought, without some fruits. Especially ought the United States to send to such a congress as that her foremost educators.

He did not know that it is the desire of Commissioner Eaton, in bringing this matter before the association, to go into details now, but simply to agitate this question, and then, from the Department at Washington, to work up such measures as may be necessary to insure the success of the congress, so far as America is concerned. He thought that that will be the proper course to take under these circumstances, and that the Department will advise with all the educators throughout the country.

Commissioner Eaton stated that he would not occupy time with explaining the difficulties under which the committee to which was intrusted the organization of these gatherings had labored, though they were great and, in numerous instances, serious. You notice that although there have been many international congresses projected in connection with this exhibition, none has been held answering to the meaning of these terms as understood by our foreign friends. Now, this is not an international congress in the full sense for the same reason that they were not. The Superintendence Section of our National Educational Association, in January, 1874, assumed certain responsibilities concerning the inauguration of an international educational congress, and directed correspondence and the preparation of a programme to be reported at the next winter's meeting of the section for its adoption or rejection. That meeting was not held, and so these conferences, of the most informal character, were all that remained possible.

Superintendent Hancock said that he supposed the committee scarcely had enough time after the meeting last summer to work the subject up with foreign nations.

Commissioner Eaton answered that they had not. He said he thought it best to put this single proposition, not to complicate it with any ideas or methods of organization, but simply say that we approve of the proposition of proceeding to organize a permanent international

educational congress. After that we can take up other points if we choose, and act upon them.

Superintendent Hancock inquired what was meant by a *permanent* international congress.

Commissioner Eaton replied that he meant one that should take upon itself an organization looking to perpetuity. There is to be, we suppose, according to the decree of the French assembly, a world's fair in Paris in about two years. That will afford an opportunity for the organization, perhaps, of a formal international congress. If this is effected there will naturally arise the question of whether there shall be a succession of such congresses. It is his hope that the question may be answered affirmatively.

Commissioner Eaton's motion gave rise to a discussion in which the following named gentlemen participated: Dr. J. M. Gregory, Illinois; Hon. J. P. Wickersham, Pennsylvania; Hon. A. Armstrong, Iowa; Dr. W. T. Harris, St. Louis; Hon. E. E. White, Indiana; Dr. J. G. Hodgins, Canada; Prof. C. J. Meyerberg, Sweden; Commissioner John Eaton; Dr. J. W. Hoyt, Wisconsin; Prof. C. L. Hotze, Cleveland, Ohio; Superintendent John Hancock, Dayton, Ohio, and J. R. Sypher, esq., Pennsylvania.

Dr. Hodgins submitted, as a substitute for the motion of Commissioner Eaton, the following resolution:

Resolved, That in the opinion of this conference it is desirable that there should be held at the next universal exposition an international educational congress, and that the United States Commissioner of Education is hereby requested to take such steps, whether by correspondence with foreign governments or otherwise, as to him shall seem most proper to bring about that result.

The resolution was adopted.

Commissioner Eaton said that he understood this resolution to be the act not only of the Americans but of the foreign gentlemen present, and that whatever he did in the matter would be done not in his own person but as the representative of all participating in this action; and that any official statement which he might make to foreign governments would embody the proceedings of this informal conference, and would go through him simply as the educational official of this country, *i. e.*, the Commissioner of Education for the United States.

He then explained that some wished to have these sessions of the conference continued; but that owing to the inability to be present of many foreign gentlemen on whom they had relied for assistance, and to the fact that the hard-working men from this country and from other countries would find it difficult to confine themselves to the labor required to keep up this conference another day, his impression was that it better be concluded to-night.

He informed the conference that there were very interesting informal conferences of an international character held twice a week, (Monday and Thursday,) at 4 o'clock p. m., in the Pennsylvania Educational

Hall, and that these meetings could be continued while the exhibition lasts, if desirable.

Mr. Hancock said that, imbued with the feeling of entire sympathy with every representative of a foreign nation that Americans he was sure feel, and expressing toward them all our heartiest good fellowship, he would move that we shake hands with our foreign brothers, in the hope that we shall meet them again. He then moved that the conference adjourn *sine die*.

The motion was agreed to, and (at 10 o'clock and 15 minutes p. m.) the conference adjourned without day.

PERSONNEL OF THE CONFERENCE.

The conference was so entirely informal that there were no specified conditions of membership. All persons from any country interested in education were invited to attend, and all who wished to make remarks were permitted to do so after first presenting their names to the committee of arrangements, through whom announcements were made.

The following foreign and American educators were present during one or more of the sessions of the conference :

FOREIGN COUNTRIES.

ARGENTINE REPUBLIC.

Mr. G. Videla Dorna, attaché of the Argentine legation, Washington, D. C.

AUSTRIA.

Dr. F. Migerka, chief commissioner for Austria-Hungary.

BRAZIL.

Dr. Philip da Motta, Brazilian educational commissioner.

CANADA.

Hon. J. G. Hodgins, deputy minister of education, Ontario.

Mr. W. A. Walls, Otterville.

Hon. J. M. Palmer, principal Deaf and Dumb Institution, Bellville, Ontario.

ENGLAND.

Professor E. Jones, Liverpool.

FINLAND.

Dr. C. J. Högman, professor of normal school.

GERMANY.

Dr. G. Seelhorst, professor of the School of Art, Nuremberg.
 Dr. Oscar Salomon, Berlin.

HAWAIIAN ISLANDS.

Hon. H. R. Hitchcock, inspector general of schools.

JAPAN.

Hon. Fujimaro Tanaka, vice-minister of education.
 Mr. Tanetaro Megato, assistant education department.
 Dr. David Murray, foreign superintendent of education.

RUSSIA.

Mr. J. C. Heard, Russian Centennial commissioner.

SPAIN.

Colonel Juan J. Marin, Spanish royal commissioner.

SWEDEN.

Professor C. J. Meyerberg, superintendent of schools, Stockholm.

UNITED STATES.

ALABAMA.

Rev. George W. Price, Huntsville.

CALIFORNIA.

Miss Buckmaster, San Mateo.
 Hon. E. S. Carr, superintendent of schools, Sacramento.

DELAWARE.

Hon. W. H. Purnell, president Delaware College.

GEORGIA.

Hon. B. Mallon, superintendent of schools, Atlanta.

ILLINOIS.

Hon. J. M. Gregory, president Industrial University, Champaign.
 Mr. L. T. Regan, Amboy.
 Mr. J. X. Wilson, Peoria.
 Mr. S. H. White, Peoria.
 Mr. C. Rapp, jr., Bloomington.
 Mrs. O. Forward, Jacksonville.

INDIANA.

Mr. Harry W. Wiley, La Fayette.
 Mr. C. W. Hodgin, Terre Haute.
 Mr. H. Greenawalt, Terre Haute.
 Mr. J. M. Olcott, Indianapolis.
 Mr. W. A. Bell, Indianapolis.

IOWA.

Mr. W. E. Crosby, Davenport.
 Miss Mary Abernethy, Illyria.
 Miss Augusta Abernethy, Illyria.
 Hon. A. Armstrong, Sioux City.
 Mrs. Armstrong, Sioux City.
 Miss G. Sharp Sioux City.
 Mr. J. M. Mansfield, Mount Pleasant.
 Mrs. Mansfield, Mount Pleasant.
 Mr. J. M. Fegtly, Mount Pleasant.
 Miss Virginia Scott, Kossuth.

LOUISIANA.

Dr. J. B. Cooper, New Orleans.

MAINE.

Mr. Charles C. Rounds, Farmington.
 Mrs. K. M. Rounds, Farmington.

MASSACHUSETTS.

Dr. D. B. Hagar, principal State Normal School, Salem.
 Mr. Andrew E. Ford, Clinton.

MICHIGAN.

Hon. J. M. B. Sill, superintendent of schools, Detroit.
 Mr. J. L. Stone, Battle Creek.
 Mr. L. T. Curtis, Calumet.
 Dr. D. C. Jacokes, Pontiac.
 Mr. J. C. Jones.
 Mr. Th. Holmes, Ann Arbor.

MINNESOTA.

Mr. P. Gorman, Lanesborough.
 Hon. W. F. Phelps, Winona.

MISSOURI.

Hon. W. T. Harris, superintendent of schools, St. Louis.
 Mr. G. D. Letterman, Allentown.
 Mr. D. G. Aber, Narrow Rock.
 Mr. S. S. Laws, Columbia.
 Miss H. Sawyer, St. Louis.

NEBRASKA.

Hon. S. D. Beals, superintendent of schools, Omaha.

NEW HAMPSHIRE.

Miss Mary M. Gill, Franklin Falls.

NEW JERSEY.

Mr. R. Bingham, Camden.

Mr. M. E. Campbell, Camden.

Mr. L. Johnson, Trenton.

NEW YORK.

Professor E. V. De Graff, New York City.

Mr. N. A. Calkins, New York City.

Mr. Max Goldstein, New York City.

Hon. N. Gilmour, State superintendent of public instruction, Albany.

OHIO.

Professor R. H. Warder, University of Cincinnati.

Hon. John Hancock, superintendent of schools, Dayton.

Mr. Franklin Ward, Marysville.

Hon. J. C. Hartzler, superintendent of schools, Newark.

Professor C. L. Hotze, Cleveland.

Mr. Alexander Forbes, Cleveland.

Mr. Frank Aborn, Cleveland.

Miss D. C. Sawyer, Cleveland.

Hon. A. J. Rickoff, Cleveland.

Mrs. A. J. Rickoff, Cleveland.

Hon. C. H. Payne, Delaware.

Hon. W. S. Ward, Salem.

Mr. F. P. Davidson, Springfield.

Mr. J. B. Neasler, Cincinnati.

PENNSYLVANIA.

Hon. J. P. Wickersham, State superintendent of public instruction,
Harrisburgh.

Mr. H. Whitall, Philadelphia.

Mr. John Lynch, Philadelphia.

Mrs. John Lynch, Philadelphia.

Rev. Warren Randolph, Philadelphia.

Mr. L. E. Claghorn, Philadelphia.

Mr. C. E. Pond, Philadelphia.

Mrs. E. W. Hutter, Philadelphia.

Miss E. J. Hanna, Philadelphia.

Miss L. S. Agden, Philadelphia.
 Mr. George W. Felter, Philadelphia.
 Mr. J. R. Sypher, Philadelphia.
 Mr. L. Stubbs, Philadelphia.
 Mr. S. M. Booth, Philadelphia.
 Rev. S. J. Travelli, Philadelphia.
 Mr. D. S. Holman, Philadelphia.
 Mr. James F. Sickel, Philadelphia.
 Mr. R. S. Hinsman, Philadelphia.
 Mr. Alonzo Flack, Philadelphia.
 Miss R. S. Walk, Philadelphia.
 Mr. Philip Cressman, Philadelphia.
 Rev. Dr. Stewart, Philadelphia.
 Mr. J. S. Gilbert, Philadelphia.
 Rev. Herman Bokum, Philadelphia.
 Mr. Alexander Loos, Philadelphia.
 Miss M. Fowkinson, Harrisburgh.
 Hon. H. S. Jones, superintendent of schools, Erie.

TENNESSEE.

Rev. P. M. Bartlett, president Marysville College.

WEST VIRGINIA.

Mr. E. M. Marshall, Glenville.

WISCONSIN.

Dr. J. W. Hoyt, Madison.
 Mr. H. W. De Motte, Delaware.
 Miss Ruth A. Graham.

UTAH.

Hon. O. H. Riggs, superintendent of schools, Salt Lake City.

DISTRICT OF COLUMBIA.

Hon. John Eaton, Commissioner of Education.
 Miss A. J. Rowland, Washington.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

C

THE INDIAN SCHOOL.

AT

CARLISLE BARRACKS.



DEPARTMENT OF THE INTERIOR,

BUREAU OF EDUCATION,

Washington, August 9, 1880.

The accompanying report is published for the purpose of acquainting educators and school officials with the interesting experiment of training Indian children in the knowledge and usages of civilized life in progress during the past eight months at Carlisle Barracks, Pa.

The report was prepared when the school had not been in existence four months, yet its remarks have been more than confirmed by subsequent events. The progress of the pupils has been most gratifying.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1880.

THE INDIAN SCHOOL AT CARLISLE BARRACKS.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, February 24, 1880.

SIR: In compliance with your instructions to represent this Office on the visit of inspection to the Indian training school at Carlisle Barracks, Pa., on the 21st instant, I left this city on the evening of the 20th for Harrisburg. The Secretary of the Interior, Mr. Stickney, of the Board of Indian Commissioners, and others of the party took the same train.

Leaving Harrisburg the next morning, after an early breakfast, Carlisle was reached before 9 o'clock. We were met by carriages from the barracks and were at once conveyed thither.

The barracks stand west of the town, on a well drained piece of land belonging to the Government. A piece of arable land adjoining this property will be leased during the approaching spring for use as a school farm and garden and for the training in the care of stock.

The buildings occupy the sides of a grassy square used for parade ground, &c. One row is occupied by the superintendent and his staff, another by the teachers' and female pupils' dormitories, a third by the boys' dormitories. Other buildings conveniently placed are used as chapel, school-house, refectory, infirmary, gymnasium, stable and coach-house, trade schools, &c. There is ample accommodation for double the actual number of pupils.

Lieutenant Pratt has at present under his charge about 110 boys and 44 girls, from several tribes. It was found impossible to obtain as many girls as boys, because the labor of the girls is so useful under the present ideas and social arrangements of the Indians.

A few of the older pupils had received some instruction and training before coming to this school, e. g., in Florida under Lieutenant Pratt, at Hampton Normal School, and in the mission schools at the tribal agencies. More than a hundred of them, however, were last October utterly without any civilized knowledge or training whatever. "They had never been inside of a school or a house," said one of the employés. They were brought to the barracks filthy, vermin covered, and dressed in their native garb. When they were assigned to their sleeping quarters "they lay down on the veranda, on their bellies, and glared out between the palings of the railing like wild beasts between the bars of their cages." The first thing to do was to clean them thoroughly and to dress them in their new attire. Baths are compulsory thrice a week. The vermin have been suppressed, all the more easily because the boys have allowed their hair to be cut in the fashion of white people. Everything except swallowing, walking, and sleeping had to be taught; the care of person, clothing, furniture, the usages of the table, the carriage of the body, civility, all those things which white children usually learn from their childhood by mere imitation, had to be painfully inculcated and strenuously insisted on. In addition to this, they were to be taught the rudiments of an English school course and the practical use of tools.

Three and a half months have passed, and the change is astonishing. The present condition of affairs can be told best by resuming the account of the day's work.

On arriving at the barracks a programme of the morning's inspection was handed to those who wished to know what was to be done. This, in a few words, comprised

an examination of (a) the schools, (b) the lodgings, (c) the shops, (d) the table, (e) physical exercise, and (f) the infirmary. It is not necessary to say that a mild, kind, firm, but sympathetic Christian influence pervades the whole atmosphere of the place and every part of the management.

THE SCHOOLS.

We entered one room after another. The first was one in which a number of the younger children were being exercised in the use of a vocabulary and in the formation of English sentences. On the teacher's desk was a large number of small familiar objects, drinking glasses, balls, cups, &c. The children successively were asked to name an object; the teacher phonetized the name into its sound elements and the children repeated it in the same way. Then the teacher placed one object on the top of another and the child made a sentence on the following model: "The cup is on the book."

In another room a class of boys was reciting a lesson in geography. One boy pointed out and named the continents, another the countries in North America, a third the oceans, a fourth the seas of Europe, and so on.

In another room a lesson in arithmetic was going on; a model of a fence afforded opportunities for questions in multiplication, division, &c. This seemed to me somewhat less satisfactory. A class of larger boys, however, wrote down, at the dictation of Secretary Schurz, a long sum in addition, which was solved with satisfactory speed and correctness.

A number of children in another class were employed in making sentences, which they wrote at once on the blackboard. A child would be told to do something; then another would tell what had been done and write what he said. The writing was very fair.

A class in calisthenics was also seen. The scholars went through a variety of motions intended to develop the chest and arms, following the example set by one of the young ladies of the teaching corps.

THE DORMITORIES.

We next visited the quarters assigned to the pupils. Each child has a separate cot bedstead with sheets, blankets, and white counterpane. The lavatories were sufficient and in good order. The number of beds in each room on the boys' side was eleven; this may be thought too many for the size of the room (about 20 feet square it seemed to me); but it was explained that these Indians of their own accord sleep with the windows open all night. Indeed, as one of the employes remarked, "They would never shut even a door if it depended on their sensations." Each room is in charge of an older boy, who is squadmaster, and responsible for the behavior of the others and for the care of the bedding and other furniture.

THE SHOPS.

We found some of the girls learning how to sew, others cooking, others mending clothes. Some of the boys were cobbling shoes; some were in the carpenter's shop, where a pinewood table was being finished by one pupil, while another was making tongues and grooves on the edges of boards, apparently for the top of another table; a third was working on table and chair legs. Two other boys were at a blacksmith's forge working away industriously. Three of the older boys had been apprenticed to a wagonmaker in Carlisle; one of these is painting wagons, another is making or putting together the parts of wheels and other woodwork; the third devotes his attention to the iron parts. I understood that these young men propose when they return home to pursue wagonmaking in partnership. The pupils are said to learn the use of tools as readily as white children do. There is a master blacksmith, master carpenter, and a shoemaker in the corps of instruction.

DINNER.

At half past twelve we went to the refectory, where the pupils' dinner was in progress. The bill of fare for the day was roast beef, sweet and Irish potatoes, tomatoes, and wheat bread. I tasted each, and found it palatably cooked. All except the very smallest children managed their own knives and forks, of course with varying degrees of skill and grace. I thought the girls in general more successful in this than the boys. The supply seemed abundant and the appetites good. The attendance on the table was done by a detail of girls.

PHYSICAL EXERCISE.

In addition to the calisthenics already mentioned and to the drill (which the state of the weather did not permit), the boys are supplied with a good sized and sufficiently appointed gymnasium. I think that an instructor in this branch would prove of great use; and that apparatus such as that devised by McLaren for home gymnastics should be introduced into the rooms of the female pupils.

The personal appearance of the pupils is generally satisfactory; there is some coughing, particularly among the boys, but no more than would be heard among an equal number of white boys. Whenever from admixture of blood the skin was pale enough to show the color of the blood, the cheeks were more or less rosy. Most of them are straight; nearly all walk in the usual ungraceful Indian fashion with no divergence of the toes. The teeth of most seemed in good condition.

THE INFIRMARY.

There is only one patient at the present time. Those who had not been vaccinated at the agencies were vaccinated on their reception. There have been two deaths since the opening of the school; in both cases the superintendent objected to the admission of these pupils, but was overruled by various considerations.

ITEMS.

Secretary Schurz addressed the pupils in the chapel before dinner. Three of the older pupils, who for the day wore their native garb, performed an Indian dance. This was most humorously varied by the assistance of a little half-breed boy who had a ludicrously droll and acute face. This was greeted with great laughter, even the stoical calm of the Indians breaking down at the sight.

One of the visitors made the following suggestive remark, which seemed to summarize Lieutenant Pratt's ideas: "The design seems to be to suppress or eradicate the Indian's instinct for destruction by substituting a love of construction by means of the processes of instruction."

I hope that arrangements will be made by which a sufficient number of girls can be educated to supply these young men and boys with wives; this point, which you yourself consider so important, is rendered particularly emphatic to me by what my father told me of marriages between Christian men and heathen women in Hindustan, and also by personal observations among our southern freed people after the late war.

After a delightful lunch, at which Mrs. Pratt presided with great simplicity and kindness, we bade the Indian Training School farewell.

I reached this city at 9 p. m. Saturday, the 21st instant, after an absence of twenty five hours.

I am, sir, very respectfully, your obedient servant,

CHARLES WARREN,
Chief Clerk.

Hon. JOHN EATON,
Commissioner of Education.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

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- Technical -
INDUSTRIAL EDUCATION IN EUROPE.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 20, 1880.

The accompanying papers respecting the Higher Commercial Institute of Antwerp, Belgium, the Federal Polytechnic School at Zürich, Switzerland, the Higher Commercial and Silk Weaving School, at Lyons, France, and the Higher Commercial School of Marseilles, France, exhibit the ways in which Europeans deal with the demand for a practical business education.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1880.

INDUSTRIAL EDUCATION IN EUROPE.

I. HIGHER COMMERCIAL INSTITUTE, ANTWERP, BELGIUM.

The Institut supérieur de commerce was established by royal decree of October 29, 1852, at the expense of the Belgian government and of the city of Antwerp.

The course of study lasts two years. The age of the pupils ranges from 18 to 20. Each student pays 25 francs matriculation fee. The tuition fees are 200 francs for the first and 250 francs for the second year. A special fee of 100 francs is charged for a course in the commercial office.

The examination for admission is held annually before a commission appointed by the government and presided over by the director of the institution. The subjects of examination are: A French composition and a translation from French into German and English; physical geography; commercial arithmetic; elements of algebra and geometry; book-keeping; rudiments of natural philosophy and chemistry; rudiments of universal history. A preparatory course of instruction is given by the professors of the institution. It lasts from Easter until August 15. The fee for this preparatory course is 100 francs. In this course special attention is paid to foreign students. Pupils who have completed their collegiate education are admitted without examination. The examination at the end of the first year for admission to the course of the second year takes place at the close of the annual session. The director, the professors, and the government inspector are the examiners. At the end of the second year a special examining board appointed by the government confers the degree of licentiate in commercial sciences upon such students as pass the requisite examination. Belgian students who have displayed special proficiency may obtain government aid which will enable them to travel abroad for several years. A sum of 40,000 francs is annually appropriated for this purpose in the budget of the minister of foreign affairs. All the examinations are free of expense to the students.

The lectures commence in the second week of October. Being delivered in French, foreign pupils must have previously acquired some knowledge of that language. The transactions in the commercial office are carried on in the languages generally used in commerce.

A library composed of commercial works and an extensive museum of mercantile products are connected with the institution.

The institution is placed under the control of a committee of seven members, the burgomaster of the city of Antwerp being ex officio president. The other six members are appointed three by the government and three by the municipal council of Antwerp.

PROGRAMME OF THE COURSE.

PREPARATORY COURSE.

French, German, English, history, geography, book-keeping, arithmetic, algebra, geometry, natural history, chemistry.

The foregoing branches are the subjects of examination for admission to the first year class.

FIRST YEAR.

I. *Mercantile office* (three hours every day): Transactions of a general business house; practical demonstration and application of commercial arithmetic; invoices;

account sales; account of charges; accounts current; commercial calculations and valuations; exchange operations; public funds; book-keeping; commercial contracts; arbitration of exchanges; bills of lading; insurance; weights and measures. Every operation is entered in books kept by single and double entry; these books are balanced, stock is taken, and the affairs of the house liquidated at the end of the year. Correspondence is carried on in French, German, English, and Dutch.

II. *Description of the following commercial articles* (three hours a week): Sulphur, phosphorus, iodine, carbon, ammonia, arsenic, metals, potash, soda, lime, magnesia, aluminium, barium, manganese, iron, steel, cast iron, oxide, sulphate and cyanide of iron, chromium and chromates, cobalt, smalt, zinc and its compounds, tin, lead and its compounds, bismuth, antimony, copper and its compounds, mercury, gold, silver, platinum, aromatic roots, timber, dye woods, barks and cinnamon, laurel, senna, sumac, tea, tobacco, flowers and fruits of all kinds, hemp, clover, wheat, rye, barley, oats, buckwheat, rice, flour, coffee, cotton, flax, vegetables, raw and refined sugars.

III. *Political economy and statistics* (two hours a week): Object of political economy; nature and utility of this science; causes which have impeded its progress; analysis of the elements of production; labor, natural agents; capital, of what it consists and what part it is acting in production; classification of capital; how capital is created and increased; importance of increase; inquiry into the causes of the greater and smaller productiveness of the producing powers in different countries; property; division of labor: ideas of Adam Smith on this subject; values: their definition; the laws which regulate them; supply and demand; the expenses of production; prices; money; the value of money; variation in the value of precious metals and the consequences resulting from it to economy and society in general; credit: general notions of credit; its importance in production; institutions of credit, or banks; various descriptions of banks; banks of deposit, commercial banks, banks of circulation; circulation of irredeemable paper or paper money; credit on land; credit as a means of rendering the use of money less frequent; influence of credit on prices; commercial crises; equilibrium between production and consumption; international trade: necessity and advantages thereof; free trade between the different nations; the system of protection; influence of money on international exchanges; the forms of production; the principle of association; commercial companies; production on a large and on a small scale; distribution of wealth; wages: in what manner wages are regulated; population: the opinions of Malthus on this subject; how the condition of those who receive wages may be improved; profits: analysis of the elements which constitute them; in what manner they are regulated; the rate of interest; rent of land; theory of Ricardo; in what manner governments procure the necessary resources to provide for the public service; taxes: their influence on the development of wealth; necessity of taxes; progressive tax and proportional tax; income tax; imposition of taxes; public credit; state loans; annuities; redemption; whether loans are preferable to taxes to meet extraordinary exigencies; statistics: their object, utility, character, division, &c.

IV. *Commercial and industrial geography* (three hours a week): Topographical and statistical information on the different countries of the world. This information, which is derived from the latest consular reports and the most recent communications, refers to the following points: Topographical situation; constitution of the soil; mineral, vegetable, and animal kingdoms; political and social condition of countries; financial condition; national wealth; prosperity and decline: their causes; principal productions of each country; commodities which can be procured from various countries with advantage; exports of various countries; principal products for which there is demand in different countries; countries particularly supplied by Belgium; statistics of imports; the character of the economical and tariff legislation of each country; hindrances and facilities in the way of trade; tastes and habits of the population relative to trade; origin and causes of commercial relations between the various countries.

V. *Law* (one hour a week): Preparatory instruction for the study of commercial law; general remarks on the matter contained in the first two books of the civil code;

examination of the general principles of obligation; contracts; sales; partnerships; loans; securities, &c.

VI. *Spanish* (three hours a week): Pronunciation, reading, grammar, dictation, translations, correspondence.

VII. *Italian* (three hours a week): Pronunciation, reading, grammar, dictation, translations, correspondence.

VIII. *German* (three hours a week): Reading, correspondence, grammar, translations.

IX. *English* (three hours a week): Reading, grammar, correspondence.

X. *Dutch* (two hours a week): Pronunciation, grammar, exercises, composition, correspondence, conversation.

SECOND YEAR.

I. *Mercantile office* (three hours a week): Conditions of sales and purchases; general usages in the commercial markets of the different parts of the world; commission business; the fitting out of vessels; insurance; banking; imports and exports; practice in book-keeping; making out bills; exchange; reports relating to commerce; finances and industry in various countries; correspondence in French, Dutch, English, German, Spanish, and Italian. The mercantile office keeps commercial newspapers from London, Liverpool, Amsterdam, Hamburg, Havre, New York, Havana, Rio de Janeiro, Buenos Ayres, Valparaiso, Sydney, East India, and China. All these papers are at the disposal of the students.

II. *Description of mercantile articles and products* (two hours a week): The course includes the study of gum, India rubber, balsam, turpentine, tar, oils, oilcakes, fermented products, salts, bones, glue, rawhides, skins, hair, feathers, wool, grease, tallow, honey, guano, meat, fish, &c., cast and wrought iron, wire, needles, nails, cutlery, sheet iron, tin plates, wire gauze, metal utensils and apparatus, beaten gold and silver, armory, printing types, artificial cement, bricks, tiles, pipes, crockery, porcelain, glass, bottles, soap, wax, varnish, ink, oil cloth, colors and paints, spun flax, spinning mills, cloths, flannels, blankets, merinos, carpets, yarn, velvets, silks, hosiery, ribbons, lace, gloves, hats, leather, morocco, paper, pasteboard, cigars, tobacco, tools.

III. *General history of commerce and industry* (two hours a week): History of commerce and industry from the earliest times to the fall of the Roman empire; first rise of industry and commerce; the first arts and their inventors; industry and trade in Phœnicia, Egypt, Palestine, and India; trade of Carthage; industry and trade of the Greeks and Romans; slavery in ancient times; its organization and influence on the development of trade and industry; condition of industry and trade and social condition of the people at the period of the Roman empire; reorganization of industry after the invasion of the barbarians; systems of corporation; hindrances which the feudal system opposed to the development of industry and commerce; to what causes the Italian republics and the towns of the Hanseatic league owed their commercial prosperity; cursory view of trade and industry in Flanders; to what particular causes the prosperity of Belgium from the earliest period of the middle ages is to be ascribed; condition of industry and commerce of the world at the period of the discovery of America; from the discovery of America up to the invention of the steam engine; influence of the discovery of the new world on trade and industry; new colonies and colonial systems; effects of these systems; commercial prosperity of Holland and its causes; decline of the industry and trade of Belgium after the treaty of Münster; manufacturing system of Colbert and its influence on the development of French industry; the edict of Nantes and the pernicious effects of religious persecution on industry and trade; Cromwell's navigation act; the creation of the banks of England and Scotland; Law's system and the evils to which it gave rise; origin of economical science; history of the first progress of political economy and the authors who began to pursue it; sketch of the condition of trade and industry at the period of the invention of the steam engine; inventions of Watt, Arkwright, Hargreaves, Crompton, &c., and their influence on production; character of the vast industry to which these inven-

tions gave rise; the impetus they gave to the industry and commerce of England; the French revolution and its influence on the trade and industry of the world; the industrial and commercial progress realized by the principal nations from the peace of 1815 to the present time; ways of communication: railroads; steamboats; telegraphs; economical reforms of England and their influence; general condition of commerce and industry at the present time; the monetary question; emigration: its causes and influence; recapitulation; progress made by society; in what manner civilization, which was at first local, became afterwards universal.

IV. *Commercial and maritime legislation compared. Principles of international law* (two hours a week): Complete study of commercial law and the modifications introduced up to the present time; associations and companies; bills of exchange; failures and bankruptcies; maritime law; theory of insurances, &c.; laws concerning consulates, pilotage, and maritime police, and passes; disciplinary and penal code for the mercantile navy and sea fishery; laws on licenses, letters patent, weights and measures; arbitration; general remarks on commercial and maritime legislation of the principal countries; principles of international law in their relation to commerce; definition and object of international law; origin, character, guarantees, sanction, and sources of this law; European equilibrium; progress of this law; public treaties; rights of neutral parties in time of war; importance of the flag, &c.

V. *Customs legislation* (one hour a week): Importance of this subject; relation between political economy and the legislation of customs and tariffs; what is understood by protection; comparison of free trade and protective systems; different kinds of duties; duties on imports; duties on exports; duties on transits; duties on navigation; different modes of applying and collecting duties; duties ad valorem; duties on weight; bonded warehouses, docks, free ports, &c.; the administration of customs; relations between the customs and the navy; smuggling; the colonial system of Europe, its effects upon political economy; modern tendency to substitute freedom for restrictions; colonial system of Holland; modifications which the colonial system underwent in England in 1833 and 1834; emancipation of the slaves; general survey of the Belgian tariff; the German Zollverein; tariffs of France, the United States of America, and other countries.

VI. *Ship building and fitting out* (one hour a week): Nomenclature and description of the different parts of the hull, spars, and rigging of a merchant ship; calculations of the tonnage according to the laws of different countries; maintenance and repair of wooden and iron vessels; materials used in ship building; visits to the ship yards at Antwerp; modes of loading and unloading; regulations relative to the transport of emigrants.

VII. *Commercial and industrial geography* (three hours a week): Review of the first year's course.

VIII. *Political economy and statistics* (two hours a week): Review of the last year's course.

IX. *German* (three hours a week): Conversation, commercial correspondence, invoices, accounts, bills of exchange, bills of lading, manifests, &c.

X. *English* (three hours a week): Conversation, English commercial law, bills of exchange, and other commercial writings.

XI. *Italian* (three hours a week): Exercises, translations, conversation; review of the first year's course.

XII. *Spanish* (three hours a week): Mercantile letters, conversation, translations.

XIII. *Dutch*: Review of the first year's course, correspondence, reading of classical authors, conversation.

II. HIGHER COMMERCIAL AND SILK-WEAVING SCHOOL, LYONS, FRANCE.

The École supérieure de commerce et de tissage, founded by a stock company, with a capital of 1,200,000 francs, is under the special patronage of the chamber of commerce of Lyons.

The school admits boarders and day scholars. There are two sections, the commercial and the weaving section.

In the commercial section, the subjects taught are book-keeping, trade and banking operations, penmanship, commercial geography, study of various raw materials, modern languages, commercial law, political economy, the moral duties of the business man, drawing, and sketching. The course of the commercial section lasts two years. Pupils who pass a satisfactory examination at the end of the second year receive a diploma.

In the weaving section the course of studies lasts one year. The pupils attend a course of lectures on the theory of cloth weaving, and spend several hours every day in working at the different looms. The workshops of the different schools contain fourteen looms of various description, including steam power looms. After a satisfactory examination, the pupils receive a diploma of capacity.

III. FEDERAL POLYTECHNIC SCHOOL, ZÜRICH.

The Eidgenössische Polytechnicum had 564 regular students and 223 hearers in 1878-'79, against 640 regular students and 263 hearers in 1877-'78. There was, therefore, a decrease of 76 in the number of regular students and of 40 in the number of hearers. Of the 564 regular students, 300 were Swiss and 264 foreigners; in 1877-'78, there were 331 Swiss and 309 foreigners. Of the 264 foreigners in 1878-'79, 94 were from Austria-Hungary, 44 from Germany, 34 from Italy, 2 from America, 18 from Roumania and Servia, 14 from Russia, 10 from Sweden and Norway, 7 from Great Britain, 5 from Denmark, 4 from Holland, 4 from France, 2 from Turkey, 2 from Greece, and 1 from Egypt.

Of 51 candidates, 47 successfully passed the examination for a diploma. Since the establishment of the school 979 diplomas have been conferred, viz: 79 to architects, 309 to civil engineers, 241 to mechanical engineers, 139 to chemists, 115 to students of forestry and agriculture, and 96 to special teachers who had completed their courses in the normal section.

The library of the school has been increased by 1,077 volumes; the total number of volumes is now 21,561. The school takes 120 periodical publications.

IV. THE HIGHER COMMERCIAL SCHOOL OF MARSEILLES, FRANCE.

The École supérieure de commerce of Marseilles, which is under the patronage of the Chamber of Commerce, provides a good scientific and commercial education for young men who are to become clerks, book-keepers, merchants, managers of commercial and industrial establishments, &c., and enables them not only to direct the inland trade of France, but also to enlarge the mercantile relations of France with foreign countries.

No pupil is admitted unless he has completed his fourteenth year.

The total duration of studies is three years. The first year's studies are purposely adapted to prepare native and foreign pupils to the technical courses of the second and third year. They include mathematics and natural sciences, as well as the study of French and English. It is an excellent preliminary course, suited to a large number of French pupils and indispensable to almost all foreign pupils.

The classes for modern languages correspond in the second year to the hours of free study in the first, so that the pupils of the latter may, with the consent of their parents or guardians, learn these languages from the very beginning of their admission.

In the second and third years the pupils are taught trade and commerce in general. The courses of these two years are to initiate them into the practice of business and give them a sufficient knowledge of the laws which govern public wealth. They are also taught to speak and write with propriety and ease the language used in business, either French or any other tongue.

The course of study in the first year being essentially preliminary, pupils are admitted without any previous examination. Nevertheless they must write legibly and possess a knowledge of orthography and composition, arithmetic, simple and compound rules, tables of weights and measures, proportion, and fractions. They must

further be able to answer questions on the principal divisions of the earth and on the leading events in the history of their country.

During the first year great care is taken in the teaching of French to foreign pupils.

The courses of the second and third years continue the scientific and commercial instruction. Students who wish to pass from the first course to the second have to undergo a thorough examination on all branches taught during the first year. If they fail in the examination, they have to resume their studies in the preliminary class.

Graduates of universities may dispense with the examination; they are, however, required to write a good hand and to possess a rudimentary knowledge of French and English. Any other young man, to be admitted directly, has to pass an examination on the scientific part of the programme.

Are admitted to the course of the third year :

1. Pupils of the second year who pass the examination at the end of that year ;
2. Students who, without having followed the courses of the first and second years, prove in an examination that they possess a complete knowledge of the branches forming the courses of the preceding years.

PRELIMINARY INSTRUCTION.

FIRST YEAR.

Writing (4 hours): Neat, clear, and legible hand. Letter writing.

French (5 hours): Grammar, spelling, and composition.

Arithmetic (6 hours): Leading rules; decimals; fractions; square root; proportion and progression; simple and compound interest; discount; French and foreign weights and measures; logarithms; mental arithmetic.

Mathematics and natural sciences (3 hours): First steps in algebra; elementary geometry; mensuration; solid measures; first steps in mechanics; elementary zoölogy, botany, and geology.

Chemistry and physics (3 hours).

Cosmography and geography (3 hours).

Book-keeping (1 hour).

English (5 hours).

This makes 30 hours of lessons a week.

TECHNICAL INSTRUCTION.

SECOND AND THIRD YEARS.

French (3 hours): Grammatical difficulties and peculiarities of the language; commercial correspondence; reports; drawing up of commercial documents.

Commercial office (second year, 9 hours; third year, 12 hours): Arithmetic; purchases and sales in various countries: account current; account sales; book-keeping; joint accounts; consignments; coins and paper money; weights and measures; commercial usages and conditions of foreign markets; arbitration of exchanges; public funds; shares and bonds; inventory; dissolution of partnership.

The pupils of the third year are divided into several offices and firms. These firms keep up a regular correspondence with one another in the language of the country to which the office is supposed to belong. They solicit or open credit, and they purchase and sell to one another all kinds of goods.

Special study of merchandise (3 hours): Agricultural and colonial products; raw materials; textiles; dyes and drugs; fabrics; ores and minerals; assaying and analysis of goods; study of the most important chemical principles of agriculture and the leading manufactures.

In this course the pupils are taught how to distinguish the staple articles of every country. The school possesses a collection of samples and a laboratory for chemical analysis.

The pupils, under the direction of the professor, visit as often as necessary manu-

factories, warehouses, building yards, &c., where they acquire the practical knowledge of things taught in school.

Commercial geography (3 hours): Commercial geography of the globe; map drawing; marketable products; area, population, climate; condition of the soil; manners and customs of the inhabitants of the various parts of the world; languages used in business; commercial companies and institutions; emigration and immigration; description of ports and harbors; commercial centres; conveyances; telegraphic lines; imports and exports; hygiene in hot climates.

Legislation and political economy (3 hours): Fundamental principles of morality and political economy; lectures on the civil, commercial, and maritime laws; maritime insurance; international law; commercial legislation in various countries; history of commercial treaties.

Ship outfit (2 hours).

Conferences in French (2 hours): In these conferences the pupils have to treat, each in his turn, in the presence of their professors and comrades, various questions of book-keeping, commercial geography, merchandise, legislation, and political economy.

Penmanship (3 hours).

English (5 hours): Grammatical studies, commercial correspondence, conferences.

Optional languages (3 hours): Arabic, modern Greek, German, Italian, and Spanish.

The school is a day school, receiving the pupils at 8 A. M. and dismissing them at 6 P. M. Foreign pupils board in private houses in the city.

Besides the weekly examinations, general examinations are held every three months in all the subjects taught in school. Accounts of the results of the examinations are sent to the parents or guardians.

The examinations at the end of the year decide whether a pupil may go into a higher course or not.

Diplomas of merit and certificates of studies are given to pupils leaving at the end of the third year, according to the notes obtained and the result of the final examination.

The council of administration does not lose sight of the former pupils of the school. A register of offers and demands of employment is opened in the director's office, and facilitates the placing of pupils who are without situations after they have left school.

The school recognizes as former pupils only those who have obtained either a diploma or a certificate of studies.

The school year begins on the 15th of October and ends on the 15th of August.

The school fees are 400 francs for the first year, 600 francs for the second year, and 800 francs for the third year. They are payable in advance.

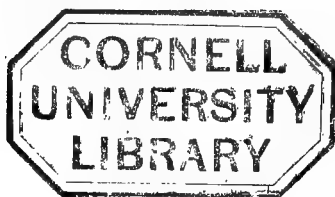
The greatest care is taken to foster a spirit of manliness and truthfulness and a high sense of duty among the pupils, and the discipline is administered only by an appeal to these noble feelings. No pupil of bad habits is allowed to remain in the school. Punctuality of attendance is rigorously enforced. Notes of inquiry are sent when a pupil is absent, and no pupil can reënter his class without showing a written excuse from his parents or guardians.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

VACATION COLONIES

FOR

SICKLY SCHOOL CHILDREN.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, August 7, 1880.

The subject of recreative trips for the children of the city poor has received much public attention for several years, and has been noted in the annual reports of this Office. The report for 1872 also contained a short but very suggestive and valuable paper by that distinguished and benevolent physician, J. M. Toner, M. D., of Washington, D. C., respecting free camping grounds or parks, where poor children and their parents might be lodged during the warm weather.

This idea has been carried out in a somewhat different shape during the last few years in Switzerland and Germany, as will be seen from the annexed translation of Minister von Puttkamer's order of May 26, 1880, and the accompanying report on vacation colonies, condensed from the *Centralblatt für die gesammte Unterrichts-Verwaltung in Preussen* for June and July, 1880.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1880.

VACATION COLONIES FOR SICKLY PUPILS.

BERLIN, May 26, 1880.

The vacation colonies for poor and delicate pupils established within the last few years by different larger cities have proved so beneficial, both as regards the physical improvement of the children and the educational influence exerted, that a further development of them is urgently desired. This, however, can not be accomplished by the school administration in an official way, since there are no funds at its disposal for the purpose; a successful development can only be expected from the initiative of private associations. But these associations cannot succeed in all cases without the aid of the royal departmental government, especially in cases where the coöperation of teachers is needed in selecting and accompanying the pupils. In many cases the advice and assistance of technical members of the departmental government may be desirable.

I forward herewith five copies of a report which, besides other details, gives especial information concerning the financial side of the question, and I direct the departmental government to further every movement that may be inaugurated in favor of the vacation colonies.

The minister of worship and public instruction,

VON PUTTKAMER.

To the Departmental and Provincial Governments of the Kingdom.

VACATION COLONIES.

The first step towards the establishment of vacation colonies for poor sickly pupils was made by Pastor Bion, who, after having been transferred from Trogen, Canton Appenzell, to Zürich, was struck by the languid and sickly looks of many pupils. He at once decided to give them relief. After having collected the necessary means, he was enabled, in July, 1876, to send 34 boys and 30 girls, in charge of 5 male and several female teachers, and in the following year 39 boys and 55 girls, in charge of 5 male and 8 female teachers, for 14 days, into the country in the vicinity of Trogen.

Reports as to the success of these colonies led the sanitary councillor, Dr. Varrentrapp, at Frankfort-on-the-Main, to visit them. The impression which the colonies made on him induced him to imitate them at home; and so, in the year 1878, a committee was organized for this purpose at Frankfort. Of the 173 boys who applied to be admitted, the committee, aided by two physicians, selected the 97 who appeared to be the weakest. Of these 97 children, 93 were between the ages of 9 and 14 years, two were 8 years old, one 15, and one 17. They were divided into 8 groups, each of which was placed in charge of a teacher. The children left the city July 2, and returned July 25. The total expenses amounted to 5,373 marks 30 pfennige (1 mark = 23 8 cents), or 55 marks 39 pfennige for each child (or \$13.18).

The children were all greatly improved in health on their return.

In 1879, 241 boys and 164 girls applied for admission. Of these numbers, 85 boys and 48 girls were sent into the country, where they remained 25 days. The expenses amounted to 7,478 marks 50 pfennige, or 56 marks 30 pfennige (\$13.40) for every child.

The city of Dresden also organized a committee last year for this purpose. Five thousand four hundred marks were collected, and 36 boys and 30 girls were sent into the country. The results were excellent.

At Stuttgart, vacation colonies were organized by a committee under Dr. Albert Sigl. In 1879, 55 children were sent into the country from July 18 to August 11. The amount of money collected for this purpose was 3,720 marks.

Finally, the city of Vienna must be mentioned. In 1879, 20 boys were sent to a country place at Weissenbach.

This year (1880) the city of Berlin is going to join the movement. The local committee has for president the minister of state, Dr. Falk.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

9

PROGRESS OF WESTERN EDUCATION

IN

CHINA AND SIAM.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, August 3, 1880.

The attention of school officers and teachers is invited to the following interesting accounts of the progress of western ideas and educational methods in China and Siam, forwarded to the Department of State by the United States minister at Peking and the United States consul at Bangkok, respectively.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1880.

CORRESPONDENCE RELATING TO WESTERN EDUCATION IN CHINA AND SIAM.

I. CHINA.

Mr. Evarts to Mr. Schurz.

DEPARTMENT OF STATE,
Washington, May 12, 1880.

SIR: I have the honor to transmit herewith, for the benefit of the Bureau of Education, copies of dispatches Nos. 600 and 612 from our legation at Peking, detailing the progress of western education in China.

The inclosure with No. 600, being printed matter, is too voluminous for copying, but will be sent for perusal if desired.

I have the honor to be, sir, your obedient servant,

WM. M. EVARTS.

Mr. Seward to Mr. Evarts.

No. 600.]

LEGATION OF THE UNITED STATES,
Peking, February 21, 1880.

SIR: There has lately been published in the North China Daily News, at Shanghai, a statement, from the pen of Mr. John Freyer, of work done in the "translations department" of the arsenal at Shanghai.

This so-called arsenal is a large establishment, in which vessels of war are built, guns cast, and small arms made. It employs, or did employ a few years ago, on the occasion of my last visit to it, about fifteen hundred hands. These were all Chinese, with the exception of some half dozen superintendents and specialists. It had grown to these dimensions in a very few years, and appeared likely to receive the continued support of the government.

I was aware that a scientific school and a department of translations had been established in connection with the arsenal, but I was not prepared to learn that so much has been accomplished by the latter of these as appears from Mr. Freyer's report. Of what the school is doing I am not informed at the moment, but it appears that a very large number of our text books have been translated into Chinese in the translations department, and that the Chinese connected with it have shown a degree of zeal which promises much for the future.

While referring you to Mr. Freyer's very interesting paper for the details of this work, I may remark that the education of the Chinese in our knowledge is going forward in many ways. You are familiar with the facts in regard to the educational mission in the United States.

About one hundred and twenty young Chinamen, supported and paid by this government, are now in various schools and colleges in our country, gaining all that is available in the way of knowledge from us to bring it into use here. Perhaps half as many more are studying in Europe. Here at Peking, the university presided over by Dr. Martin is progressing very favorably. There is a school at Foochow connected with the arsenal there, and another one at Canton.

All of these educational enterprises are sustained by the government. Besides these, however, there are many schools, of a more or less advanced order, in charge of and supported by the several foreign missionary bodies, where other branches than those directly connected with the moral and religious purposes of the missionaries are taught. Educational work is fortunately of such a nature that its results are felt in a constantly increasing measure. It has been progressive everywhere else, and there is enough in Mr. Freyer's paper alone to show that it will be progressive here. The people are eager to avail themselves of the opportunities offered to them, and the government appears as the patron of western knowledge.

Under such circumstances it is possible to take a hopeful view of the future of China, despite all her conservatism.

I have the honor to be, sir, your obedient servant,

GEORGE F. SEWARD.

Mr. Seward to Mr. Evarts.

No. 612.]

LEGATION OF THE UNITED STATES,

Peking, February 29, 1880.

SIR: Recurring to my dispatch No. 600, in regard to the work done in the "translations department" of the Shanghai arsenal; I have now the honor to hand to you a leading article which I have taken from the Shanghai Courier, in regard to foreign education for the Chinese, and to say that I have asked our several consular officers to report to me what is being done at their several ports in the direction indicated.

I have the honor to be, sir, your obedient servant,

GEORGE F. SEWARD.

[Extract from the Shanghai Courier of Friday, January 30, 1880.]

Foreign education for the Chinese.

A greater knowledge of western civilization than is now possessed is essential to the progress of the Middle Kingdom. To individual Chinese, foreign education is something of a fortune, and is the surest capital with which they can be invested. The saying that "knowledge is power" is well borne out in this case, for foreign knowledge is almost certain to obtain for a Chinaman a lucrative appointment and an improved social position. Parents are now realizing this fact, and many of the well-to-do Chinese are anxious to send their sons to Europe or America to be educated. The advantage of such an education can hardly be overestimated in the case of those who have before them official or public careers.

At the same time there are considerable drawbacks to going abroad, and it may be questioned whether, in many instances, equally good results could not be secured without incurring so great a loss of time and expense — a loss so considerable as to prevent the benefit from being enjoyed by all but the wealthy or those supported by other than the family funds. For of course the sons of even what may be called the middle classes cannot afford to leave their country in order to be educated, and, unless they can receive foreign instruction in China, will not receive it at all. It cannot be denied that residence abroad possesses some advantages which cannot be obtained in China; yet, except in rare cases, those particular advantages are not the most needed.

Why should not useful knowledge be imparted to the Chinese as well in China as it can be in Europe or America? The drawbacks to a Chinaman's residing away from his home for the time needed to follow a regular course of instruction are sometimes not duly considered. The Chinese are apt, as has been pointed out, to be "too much Europeanized." Especially are they likely to neglect their native language, and so on their return lessen their opportunities of usefulness and prospects of promotion. Particularly is this so with a large class who hope to qualify themselves for the position of professors. A teacher must not only be acquainted with his subject, but he

must also be able to impart his knowledge to others; which it is impossible he can do if he has only an imperfect acquaintance with the language which is the medium of communication. It should always be borne in mind that foreign knowledge, though exceedingly useful, is not all-important to a Chinaman, and that even its usefulness may be greatly diminished if it is obtained at cost of the neglect of his mother tongue. Looking, therefore, to the expense of being educated abroad, and to its serious inconveniences, especially to the fact that it must ever be beyond the reach of all but the rich, it is of great importance to consider how a similar education can be had in China. It would be very incorrect to speak of the local polytechnic as a failure, but it is, as yet, a long way from having realized the objects of its promoters. Its educational facilities are great, and though it is now doing good and useful work, we trust to see it become something very different to what it is at the present moment. There are few institutions in Hong Kong which have conferred greater benefits on the Chinese than the Central School; and it is surprising that an attempt has not been made to establish something of the kind at Shanghai. The St. John's College will, it is hoped, contribute towards supplying what is a seriously felt want.

At this institution the course of instruction comprises the English language and literature, geography, history, the evidences of Christianity, natural science, mathematics, natural philosophy, chemistry, astronomy, mental and moral philosophy, and international law. This is a sufficiently extended curriculum to begin with, but it is intended to enlarge it if the project be successful. Pupils are required to be fifteen years of age and to possess some knowledge of the Chinese classics. We believe that the Hong Kong Central School owes much of its success to the purely secular character of its teaching; and many who take great interest in the foreign education of the Chinese will perhaps note with regret the religious element of St. John's College. But the two institutions are of a different character, and it could hardly be expected that the work carried on at St. John's should be purely secular. The promoters have, however, met possible objections in a spirit which, under the circumstances, must, we think, be considered liberal. They wish it to be distinctly understood "that St. John's College is a literary and scientific school, and not per se a theological institute." A student must attend the daily prayers at chapel and the usual Sunday services, but in other respects he is free to devote himself to the secular side of the daily routine of class work. Many people would have been glad if the authorities had allowed attendance at prayers and Sunday service to be voluntary, and probably the chief end in view might have been better reached in that manner. Yet, though the requirement may restrict the usefulness of the institution, preventing it being generally availed of, we are pleased to call attention to it as being calculated to confer great advantages on the Chinese youth, and to offer it the encouragement of publicity. It may be well to note that the charge for board and tuition is exceedingly moderate.

Mr. Hay to Mr. Schurz.

DEPARTMENT OF STATE,
Washington, August 13, 1880.

SIR: I have the honor to inclose herein, for transmission to the Bureau of Education, a copy of a recent dispatch from the late minister to China, Mr. Geo. F. Seward, covering the replies which he has received from the United States consular officers in that empire as to the efforts which are being made for the education of the Chinese in foreign branches of knowledge, either by the government of China, by private enterprise, or by missionary efforts.

I have the honor to be, your obedient servant,

JOHN HAY,
Acting Secretary.

Mr. Seward to Mr. Evarts.

No. 705.]

LEGATION OF THE UNITED STATES,
Peking, June 11, 1880.

SIR: I have the honor to hand to you herewith copies of the answers which have been received from our consular officers in this empire to the inquiry made in a circular addressed to them as to efforts being made to educate the Chinese in foreign branches of knowledge, either by the government of China, by private enterprise, or by missionary effort. The circular referred to was forwarded to the Department with my dispatch No. 600.

While these reports are not as full as I could have wished, they still furnish an outline of the work which is being done, and may be of interest to the Department.

I have the honor to be, sir, your obedient servant,

GEORGE F. SEWARD.

Mr. Goldsborough to Mr. Seward.

No. 107.]

AMOX, April 23, 1880.

SIR: In response to your dispatch No. 86, of February 27, 1880, I beg to state that there are two private English schools at this port for the education of Chinese, conducted by native born Chinese, who possess a fair knowledge of the English language, but there is no institution of the kind founded or supported by the government.

The missionaries have several schools of their own for the tuition of Chinese boys and girls in the Chinese language.

I have the honor, &c.,

W. ELWELL GOLDSBOROUGH.

Mr. Cheshire to Mr. Seward.

No. 55.]

FOOCHOW, March 29, 1880.

SIR: I have had the honor to receive your dispatch No. 78, calling upon me to furnish you with such information as may be available to me in regard to the education of Chinese in foreign languages within this consular district, whether in schools founded and supported by the Chinese government, or by private enterprise, or by missionaries, as far as the secular branches are concerned, and also to report upon the schools established at Hong Kong by the colonial government.

I now beg to submit the following report:

The Tung wen Kwan is the only scholastic institution under government auspices for teaching foreign knowledge in Canton. It was established by order of the Tsung li Yamen about sixteen years ago. It is under the official control of the viceroy, the haikwan (superintendent of customs), the Tartar general, and two lieutenant Tartar generals, but the practical control is left almost entirely in the hands of the Tartar general, to whom it affords opportunities of patronage, for the staff is large, and the members thereof not only benefit by the salaries they receive but their official appointment as officers of the college (Tung wen Kwan) forms a stepping-stone to promotion in other branches of the public service. The staff consists of three superintendents, (the chief of whom holds rank about equivalent to that of a major general), three Chinese teachers, a foreign teacher with a Chinese assistant, two Chinese clerks, doorkeepers, cooks, and other servants. The number of students is fixed at thirty, of whom twenty are classed as students proper and ten as supernumerary students, the latter being intended to fill vacancies as they occur in the former; and when, from various causes, the total number falls to twenty or twenty-five, fresh supernumeraries are added to make up the number. The students proper receive a small pay of

three taels a month, but the supernumeraries receive nothing except a free breakfast every day.

It is difficult to define the *raison d'être* of the Tung wen Kwan College; in theory it is established to provide the Chinese government with a staff of interpreters and persons conversant with foreign literature and foreign habits of thought; but, so far as can be judged by patent facts, the patronage above referred to is the element most appreciated, and it may be well to notice the extent to which the theoretical object has been carried out, and how far the Chinese government has availed itself of the material for the production of which something like eight hundred dollars a month has been expended for the last sixteen years in the maintenance of the college.

About ten years ago fourteen students were drafted from Canton to the Peking college. Of these, five have retired from various causes, six are still attached to the Peking College, and the remaining three have appointments in legations abroad, one in Washington, one in London, and one in Japan. Since 1870 not one student has been drafted to Peking; none of the Canton students have in any way been called upon to render service to their government. Most of them have received an honorary literary degree (Hsin Tsai) equivalent to B. A., and three or four of them are nominally interpreters, for which they receive a small additional pay. Year after year passes, and boys of 17 grow up to be men of 27, marry and become fathers, and go on with their foreign studies without so much as a word of encouragement from their own authorities. Under such discouraging circumstances it must be that studying is often done in a perfunctory way; and yet, while some of the students have, as I understand, a very good knowledge of English, wanting only practice outside the school walls to render it equal to that of any Chinaman who has not had the advantage of living abroad, they constantly witness men of less technical knowledge than themselves, men of lower stamp altogether, men picked up here and there without any proper steps being taken to ascertain their fitness, called upon to perform the very duties for the performance of which the students of the Tung wen Kwan are in theory specially educated.

The course of study, I am informed, consists chiefly of the English language, together with but subordinate to which there are geography, arithmetic, history, algebra, mathematics, and astronomy. A very small proportion of the students have made any progress in algebra or mathematics, few are even fair arithmeticians, and much that they are called upon to learn of geography, history, and astronomy is soon forgotten. This arises from no want of ability, but from an utter want of encouragement on the part of the Chinese authorities for the students to trouble themselves with such studies. Without a reasonable knowledge of the language they are liable, on the motion of the foreign teacher, to be dismissed from the school, and in the acquisition of that they are to some extent buoyed up with hope, a hope that sometimes becomes lamentably faint, that the language will ultimately be of service to them; but with respect to the other branches, I am given to understand, no person in authority, except the foreign teacher, seems to know or care whether they are taught or not.

The students consist almost entirely of Tartars (including bannermen). Originally about one-third were Chinese, but it was found that, after learning English at the expense of government, these latter generally disappeared. The Tartars are much more bound to the government, and are loyal, both from training and self-interest. As young men, they are far more noble and honorable in their character than the Chinese, lacking in a great measure the low cunning which characterizes the latter, especially when they get official employment. But it is hard to say how far their natural nobility and honor would suffer if they were thrown into that vortex of corruption and dishonesty which pertains to official life.

I am informed that there has, for the past year or two, been an intention to add a German and a French department to the Canton College, and that extensive premises have been erected for this purpose, but some difficulty about funds seems to have caused further steps to be postponed.

Private schools.—There are no private schools worthy of the name in Canton for teaching foreign languages. Now and then a small school is opened, in which English is professed to be taught by a man whose knowledge of that language is too limited to fit him for other employment, and after a brief struggle these schools die out, one after another. There is no doubt that the advantages offered by the government schools in Hong Kong are too great to enable private schools in Canton to compete with them.

Missionary schools.—None of the missionaries in Canton teach English or any other foreign language to their Chinese pupils now, nor have they for some years. They found by experience that it was very difficult to teach English to their pupils because of their inaptitude to learn western languages; that the object of the majority who came to their schools (formerly) to learn English was simply to get a sufficient knowledge of that language to enable them to get some lucrative employment with foreigners, and as soon as they had acquired a little smattering of English they disappeared and passed away beyond their Christian instruction.

I shall endeavor to furnish you with some particulars in regard to the schools established at Hong Kong by the colonial government shortly.

I have the honor, &c.,

F. D. CHESHIRE.

Mr. Scruggs to Mr. Seward.

No. 21.]

CHINKIANG, March 24, 1880.

SIR: I had the honor to receive on the 21st instant your dispatch No. 63, of the 27th February last. In response thereto I regret to say there is not a school of any kind, native or foreign, public or private, secular or religious, within this district in which Chinese are educated by foreign methods or in foreign knowledge. The missionary schools are all conducted in the native language, and their curriculum confined to purely religious and sectarian instruction. A few young men among the native residents of this port take lessons in the English language from a native interpreter educated at Hong Kong but now employed here in the customs service. But they seek to know no more of our language than is barely necessary to aid them in business transactions with foreigners, and what they do thus acquire is little else than the barbarous and childish dialect known as "Pigeon English." I know of but one exception, and that is the case of General Wong, the military commander here, an educated Chinaman, who is ambitious to enter the diplomatic service of his country.

I am, sir, &c.,

WILLIAM L. SCRUGGS.

Mr. De Lano to Mr. Seward.

No. 164.]

FOOCHOW, May 5, 1880.

SIR: I have had the honor to receive your dispatch No. 109, asking me for such information as may be available to me in regard to the education of Chinese in foreign knowledge in this consular district.

There are at the Foochow arsenal two schools, one under English and the other under French management. In the former the number of students varies between 30 and 50, and the studies pursued are English, arithmetic, geometry, geography, grammar, trigonometry, algebra, and navigation. In a four and a half years' course the students receive from the government a monthly stipend of \$1.

There is a naval and a mechanical branch of the same school, each having an average of 25 students receiving the same monthly allowance from the government, which also pays a very liberal salary to the professors in charge.

The school under French management has about 40 pupils, in four divisions, studying French, arithmetic, elements of algebra and geometry, trigonometry, analytic geometry and calculus, mechanical engineering, transmission of power and friction. The branches of this school are a school of design and school of apprentices, the pupils pursuing many of the studies enumerated above and receiving the same stipend of \$4 a month. The professor is also very liberally paid.

I know of no schools founded by private enterprise in which foreign studies are pursued. There are several schools for both males and females conducted by foreign missionaries in which other than secular branches of study are pursued, say, the elementary branches, such as geography, mathematics, astronomy, &c., but all in the Chinese language.

I am unable at present to state the number of pupils usually in attendance in these latter schools.

I have the honor to be, &c.,

M. M. DE LANO.

Mr. Shepard to Mr. Seward.

No. 45.]

HANKOW, April 10, 1880.

SIR: Referring to your No. 85, on the subject of educating natives in foreign sciences, I have to report that I cannot learn of anything done in my district of any moment. At sundry times some foreigners wanting employment have opened small schools in Hankow, intending to teach people of any age to read English. The results have been inconsiderable, as the enterprise has in all cases been abandoned as soon as more lucrative pursuits have been available. Besides this, I know of no efforts made in the direction of your inquiry except some work of Dr. A. C. Bumr, of the American Episcopal mission at Wu-Chang, who, before he left, gave some instruction to a few converts in the theory and practice of medicine. In his view his results were encouraging, but not fully developed.

I am informed also that Dr. Manby, now located here in charge of the London Mission Hospital, is preparing a system of instruction, and intends soon to put it in operation, for the systematic training of native pupils in the principles and science of physiology, with surgical and medical training, in a course of some years' duration in connection with his important hospital work. Beyond these I know of nothing done in the line of your investigation.

I am, sir, &c.,

ISAAC F. SHEPARD.

Mr. Bandinel to Mr. Seward.

No. 42—625.]

NEW CHWANG, March 30, 1880.

SIR: In response to your excellency's dispatch No. 66, I have the honor to state that, as far as I can learn, there is not within the three Mantchoorian provinces any school founded or supported by native official or private enterprise in which foreign knowledge is imparted to Chinese students. From inquiries among the missionaries I learn that—

The *Roman Catholics* have a college under foreign supervision, wherein 26 pupils are instructed in Latin, philosophy, theology, and the elements of geography, mathematics, &c., and whence 4 pupils have been ordained as priests.

The *Irish Presbyterian Mission* has a boys' school under the supervision of a clerical missionary, wherein 20 scholars, from 9 to 13 years of age, are instructed in geography, penmanship, and the course of (4) reading books used in the government schools at Hong Kong. They will learn, when more advanced, arithmetic and other subjects. There is also the nucleus of a girls' school, only two pupils, supervised by the mission-

ary's wife, who teaches them plain sewing in addition to the above branches of knowledge.

Mr. Carson also contemplates starting a day school in the heart of the city, in connection with the above mentioned which are held in his compound.

The medical missionary of the Irish Presbyterian Mission has in his own compound a boys' school with 15 scholars, and in an adjacent building a girls' school with 9 scholars. Many of these are too young to learn much, but the elder ones learn geography (Wade's book), and three boys and three girls are taught to read and write English.

The *Scotch United Presbyterians* have a mission here, but apparently neither in their boys' school, recently discontinued, nor in their girls' school, which numbers 14 scholars, has any foreign secular education been, except indirectly, imparted. The girls, however, are learning foreign needlework.

I have the honor, &c.,

J. J. F. BANDINEL.

MY DEAR MR. BANDINEL: In our boys' school, which we have now discontinued, our object was to give the children of our church members a Chinese classical education, such as they would receive in a first class native school. Our principle was that of the grammar schools at home. Outside of the regular lessons, there was daily the "religious hour," or morning and evening class, where I instructed them in religious truth. I only bound myself to spend one hour per day with the scholars, and therefore never formally laid myself out to train them in foreign knowledge. But I have, of course, introduced all manner of subjects in my illustrations, making it a point incidentally to introduce whatever knowledge of historical and scientific subjects I myself possessed. The school room has always been well supplied with books. I think we have had almost every foreign work which has been translated, and we take in for the school, 1st, the *Globe Magazine*; 2d, the *Scientific Magazine*; 3d, the *Child's Paper*. I have several times had teachers who took a great interest in these periodicals, and who did what they could to make the subjects intelligible to their pupils. We still continue a flourishing girls' school. We also teach the Chinese classics there, and with great success; though the classics are, as it were, taught incidentally, and scripture history, &c., forms the bulk of the teaching. The girls are being taught foreign needlework, but have not made any very great attainments. But in most cases the direct teaching has borne mostly on Chinese subjects, and we have trusted to the personal influence of the foreigners to communicate foreign knowledge.

Yours, sincerely,

J. MACINTYRE.

MY DEAR MR. BANDINEL: In reply to your letter of the 18th instant, I beg to state that the secular subjects taught in the school are geography, penmanship, and the course of reading books taught in the government school at Hong Kong.

These reading books, four in number, in a graduated series, treat of a great variety of subjects, both foreign and native. As soon as the children are far enough advanced, they will be taught arithmetic and other subjects.

The school is a free boarding school, supported by the mission, and our object is to train for ourselves a staff of native helpers.

Believe me, &c.,

JAMES CARSON.

MY DEAR MR. BANDINEL: The only secular instruction given in my school is in geography. I have given half a dozen children, three girls and three boys, lessons in English. The lessons are merely in reading and writing.

This is all I have to say in reply to your communication of the 11th instant.

I am yours, very truly,

J. M. HUNTER.

[Translation.]

MOST ILLUSTRIOUS SIR: I make a brief answer to your excellency concerning the inquiry of the most noble minister in charge of the legation for the consulate of America in Peking.

In our region, Mantchooria — that is, in the three provinces of Mukden, Kirin, and Saghalien — there has existed, so far as I know, no school or institution founded by the Chinese government or established by private citizens in which pupils may study European sciences and acquire some knowledge of the arts of foreign nations.

As regards the Catholic mission, which has been intrusted to my care, we have founded one college, with Drs. Boyer and Hinard as rectors, in which twenty-six pupils study Latin language, philosophy, and theology, as well as geography, mathematics, &c. Four graduates from this college have been ordained priests already, and are offering themselves with most pleasing readiness for the service of preaching and directing the Christians of the region.

Nor, indeed, am I able to give your excellency any information upon the subject of your question of yesterday. Meanwhile I pray God that He may bestow all blessings upon your excellency, whom I desire to make certain of my respect.

Most devotedly, yours in Christ,

C. DUBRAIL,

Bishop of Bolina, Vicar Apostolic of Mantchooria.

Mr. Lord to Mr. Seward.

No. 119.]

NINGPO, April 20, 1880.

SIR: I am sorry that I have not been able to reply earlier to your dispatch No. 57, requesting such information as I might have in regard to the education of Chinese in foreign knowledge within this consular district.

Nothing, I believe, has been done in this respect by the Chinese government or by Chinese officials in this province, either to found or sustain schools in which foreign knowledge has been taught. Nor has anything worth speaking of been accomplished by private enterprise, outside of missionaries. There was a small attempt made here a few years ago to get up an English school for natives, but it came to nothing, very likely through the incapacity of the person who undertook it.

Missionaries from the beginning of their work here have had schools of various kinds. The object of these schools has, of course, been religious. Yet, as in religious schools at home, secular knowledge has been taught in them to some extent.

Missionaries in this part of China have not, as a general thing, encouraged their pupils to learn English, but they have tried to teach them history, geography, mathematics, philosophy, astronomy, physiology, medicine, &c., and their efforts have, no

doubt, been successful. The number thus instructed may not have

tion. It is the inconvenience and disadvantage under which consular officers are placed in being required to write their dispatches in Chinese to Chinese officials. I wish to say something on this subject, but perhaps I had better do it in another letter, and when I have more leisure.

I have the honor, &c.,

EDWARD C. LORD.

II. SIAM.

Mr. Evarts to Mr. Schurz.

DEPARTMENT OF STATE,
Washington, May 17, 1880.

SIR: I have the honor to transmit herewith, for the information of your Department, a copy of dispatch No. 150, dated March 18, 1880, from the consul at Bangkok, Siam, in relation to the system of education lately introduced into Siam.

I have the honor to be, sir, your obedient servant,

WM. M. EVARTS.

Mr. Sickels to Mr. Payson.

No. 150.]

CONSULATE OF THE UNITED STATES OF AMERICA,
Bangkok, Siam, March 18, 1880.

SIR: I have the honor to acknowledge the receipt of Department dispatches Nos. 57, 58, and 59, dated respectively December 1 and 6, 1879, and January 6, 1880, all at hand by the same mail.

In regard to the information required by the Department of the Interior, referred to in No. 57, I have the honor to inclose a private letter on the subject from Rev. Dr. McFarland, the principal of the King's College and the originator and founder of the new system of education lately introduced into the kingdom. This letter contains all the information procurable on the subject. Dr. McFarland was for many years in charge of the American Presbyterian mission schools in Petchaburi, and is well qualified for the position to which he has been transferred.

Although too modest to claim any merit for himself in this new work, I am satisfied from my own observation and the reports of the committees who have the matter in charge, that our countryman's success in the conduct of this new school has been fully up to the expectations formed, has met with His Majesty's approval and given him full satisfaction. I do not, however, think that this success, or indeed any, if much greater, will induce the government to extend the area of operation and establish at present any general school system throughout the kingdom, or even at the prominent points.

The Siamese are vast projectors and their ideas in the beginning are large, but their plans taper very much and very abruptly as the charm of novelty passes away and demands on the purse increase. There is, besides, a strong party of the old régime who do not approve of education in any form, particularly in foreign languages and studies, who believe implicitly in the wisdom of their ancestors, and obstinately oppose themselves to any attempt at removing the ancient landmarks wherever posted.

The party of progress, "Young Siam," appreciate the value of the old adage, "The more haste the less speed," and their policy is to move slowly and gradually, temporizing rather than raising bitter issues, abiding their time, until its efflux shall have removed the more acrid and influential members of the old conservative party and left the field clear for the introduction of more modern and more enlightened ideas.

The King is young; the contemporaries and counsellors of his father are old. He has all the advantage on his side and can afford to wait. In the mean time the influence of this school is extending itself by means of the younger branches through the

principal families of the kingdom, and can scarcely fail to produce in the new good time favorable results.

I am, sir, your obedient servant,

DAVID B. SICKELS,
United States Consul.

MY DEAR MR. TORRY: In compliance with your request, I will now give you some items of information in reference to the educational work recently commenced in Siam. So far as I know, the desire for the education of Siamese youth originated with His Majesty the King.

Being in Bangkok in November, 1877, His Excellency Phya Bhaskarawongse, the King's private secretary, sought a private interview with me, and informed me that His Majesty desired to have a school started in Bangkok, and asked me what I thought of taking charge of it. I asked time to consider the subject. His excellency then requested me to write out a plan for a school. In a few months after this, I replied favorably to the proposition to take charge of a school and also presented a plan. His excellency then secured for me an audience with the King, at which time His Majesty informed me that he had fully determined to have schools.

About a year after this, or in October, 1878, I entered into an engagement in an article with the committee appointed by the King to take charge of a school for five years. That school was opened in Bangkok on the 1st of January, 1879, with 50 scholars, mostly sons of noblemen and a few princes. These 50 scholars were selected by the committee, placed in the school under my care and control, and they are taught and boarded at government expense. Day scholars receive their tuition and books free, but are required to pay their boarding. Some board at the school; others board at home. The whole number in attendance during the first year was 104. The object of this school was to furnish an education in the English and Siamese languages to as many as can be accommodated.

The King has not afforded educational advantages to the people throughout the country, as has been stated. I think His Majesty wishes to open other schools, but they must make an experiment with this one first and see how it succeeds. This is the only government school in the country where English is taught.

There is a school numbering about 60 pupils and supported by the King where the Siamese language only is taught.

Besides these government schools there are several private schools, besides those kept by the religious societies.

L. G. MCFARLAND.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

EDUCATIONAL TOURS

IN

F R A N C E.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, October 18, 1880.

The letter of the French minister of public instruction, addressed to the departmental educational authorities and here translated, explains an interesting method by which it is sought to improve the qualifications of teachers in the French Republic.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1880.

EDUCATIONAL TOURS IN FRANCE.

PARIS, *May 7, 1880.*

MONSIEUR LE RECTEUR : I hasten to bring to your knowledge two measures which I have thought necessary to encourage our young teachers in thorough and earnest study. At my suggestion the President of the Republic has been pleased to sign a decree modifying Article 5 of the decree of April 19, 1862. Henceforth the student who has obtained a full certificate of capacity on leaving the normal school will receive not the former indemnity of 100 francs, but 200 francs.

Besides this favor, the object of which is to aid the better class of our normal graduates at the start of their career, I have sought for some other reward which might at the same time further their intellectual development ; I think I have found it in an institution that is already old and has even been discarded in this country, but which has been successfully revived during the last few years, especially in the higher normal schools of Paris : I allude to the educational tours during the holidays.

The holiday excursions I desire to organize in the interest of our best normal students should be essentially educational tours : scientific expeditions I will not call them, but expeditions carefully arranged, well directed, and animated by the spirit of methodic observation. They should be under the guidance of a learned and experienced teacher, whom I shall select among the *maîtres-adjoints* (assistant teachers) who have had charge during the year of the heavy task of supervision. The young students will get accustomed to see for themselves, to see much, and, above all, to see well, historical monuments, relics of archæology, picturesque views, topographical peculiarities, natural phenomena, the products of industry and agriculture, local traditions, customs, and languages, all of which should be to them material for study and reflection. Under these conditions the tour would bear all its fruits, without being necessarily very extensive or very long. According to the number of normal students who desire to take part, several educational caravans may be organized to send the students of northern departments to the south of the country and those of the interior departments to the seashore ; in thus presenting the country to them from new points of view, they will get a better knowledge of it and love it more.

Later, when these vacation tours have been successfully organized and conducted, their range may be extended ; they may for example pass into adjoining foreign countries, where primary education and the study of educational science are in high esteem. This would be a new source of fruitful observations and beneficial comparisons.

I look for the best results from this daily intercourse of the most distinguished of our normal pupils during their holiday tour, and hope that it may dissipate many provincial prejudices.

The young tourists will be expected to write an account of what has particularly interested them ; the best passages of these memoirs may be reproduced in the departmental educational bulletins.

You are requested, Monsieur le Recteur, to forward me a list of the normal pupils who have obtained the complete certificate in 1879 and 1880 and whom you recom-

mend for the first expedition, to be organized during the coming holidays. Immediately after the close of the session of July, you will add the names of the new students who have received the complete certificates. I shall inform you at what date, to what parts of the country, and under what conditions the first tour of the normal pupils will take place.

Respectfully, &c.,

JULES FERRY,

Minister of Public Instruction and Fine Arts.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

FIFTY YEARS OF FREEDOM IN BELGIUM, EDUCATION IN MALTA,
THIRD INTERNATIONAL GEOGRAPHICAL CONGRESS AT
VENICE IN 1881, ILLITERACY AND CRIME IN
FRANCE, SCHOOL SAVINGS BANKS, AND
EDUCATION IN SHEFFIELD.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, April 12, 1881.

The foregoing list of topics shows the varied contents of this publication, which is printed as a reply to many inquiries of equally various kinds.

JOHN EATON,
Commissioner.

P. 164

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.

FIFTY YEARS OF FREEDOM IN BELGIUM.

The Bureau has just received a valuable publication entitled *Cinquante ans de liberté—1830–1880*, which gives a very interesting account of the educational progress in Belgium during the last fifty years.

In 1830, when Belgium separated from Holland, there were in Belgium proper 3 universities—Louvain, Liège, and Ghent—with a total number of 1,612 students; 45 secondary schools; and 1,146 primary schools. In the absence of a school law the progress was at first slow, until the year 1842, when an educational law was passed. In 1845 Belgium had 5,321 primary schools, viz: 2,350 communal, 1,030 adopted, and 1,941 private schools. In 1875, 30 years later, the number of communal primary schools alone had risen to 4,152. The number of adopted schools had decreased to 457 and the number of private schools to 973. The number of infant schools was 18,834 in 1845; in 1875 this number had risen to 97,382. The number of adult schools has risen in the same period from 869 to 2,615. In 1847, 41.06 per cent. of the conscripts were illiterate; in 1850, 35.35 per cent.; in 1860, 32.87 per cent.; in 1870, 25.16 per cent.; in 1878, only 19.59 per cent. In 1831 the Belgium Chambers voted \$129,551 for all educational purposes; in 1840 this amount had risen to \$220,385; in 1850 \$244,546 were voted for primary education, \$56,000 for secondary, and \$136,760 for superior—total, \$437,306; in 1880 the educational budget amounted to \$766,906; in 1870, to \$1,625,383; and in 1880, to \$3,308,224. The outlay of the provinces for educational purposes has risen from \$110,827 in 1852 to \$319,161 in 1873, and the communal expenditure from \$330,291 in 1852 to \$1,216,668 in 1873. The total expenditures of the state, the provinces, and the communes for educational purposes from 1843 to 1873 amount to \$41,713,604.

On the 31st of December, 1875, Belgium had the following institutions of learning:

(1) *Public*: 4,157 communal primary schools, 263 communal infant schools, 1,623 communal adult schools, 63 communal apprentice schools, 101 reform and prison schools, 60 athenæums and other secondary state schools, 34 communal colleges, 2 state universities (Liège and Ghent), 10 schools of midwifery, 8 primary normal schools, 5 secondary normal schools, 5 military schools, 2 schools of civil engineering, mines, arts, and manufactures; 1 provincial school of commerce, industry, and mines; 31 subsidized industrial schools, 1 superior institute of commerce, 2 state navigation schools, 1 elementary navigation school, 1 agricultural institute, 1 school of veterinary surgery, 2 schools of horticulture and arboriculture, 1 academy of fine arts, 76 academies and schools of drawing, 2 royal conservatories of music, and 71 subsidized conservatories and schools of music. This gives a total of 6,528 public institutions of learning.

(2) *Private*: 1,430 primary schools, 661 infant schools, 992 adult schools, 367 apprentice schools, 270 primary boarding schools, 104 secondary schools, 2 universities (Louvain and Brussels), 1 faculty of theology, 6 theological seminaries, 30 primary normal schools, 24 academies and schools of design, and 145 conservatories and schools of music. The total number of private institutions of learning is thus 4,032.

The total number of public and private institutions of learning is therefore 10,560.

Belgium has a population of 5,336,185 on an area of 11,373 square miles, or 469 per square mile, which is the densest population in Europe. In 1830 the population amounted to barely four millions. About one-half of the Belgians speak French and the other half Flemish or German. Nearly all the inhabitants of Belgium profess the Roman Catholic religion; there are about 15,000 Protestants and 1,500 Jews.

EDUCATION IN MALTA.

Malta is an island in the Mediterranean belonging to Great Britain. It has an area of 115 square miles and a population of 149,084—76,016 males and 73,068 females. The capital, Valetta, has 90,000 inhabitants.

The greatest educational event in Malta occurred at the time when the Byzantine dominion came to an end, and when, after two Saracenic invasions and terrible massacres, an Arab emir assumed the sovereignty of Malta. It was then that the foundation of the language was laid, to which, with characteristic Saracenic pertinacity, the Maltese still cling. This was about 1,000 years ago. The Arabs remained masters for some 200 years. When in 1090 Count Roger the Norman became conqueror he must have found in Malta very slight traces of Phœnician or Byzantine speech. The Maltese had in fact become Arabs in language, but by a remarkable dispensation they still devotedly adhered to and cherished the christianity which St. Paul had preached during his sojourn of three months on their island. In connection with the rule of the Normans, which lasted for about a century, the only incident of importance as to the question of language is that Count Roger applied the Sicilian code of laws (published both in Sicilian and in Latin) to his Maltese subjects. The Sicilian vernacular was thus, doubtless, the precursor of the Italian as the language of the law between seven and eight centuries ago.

Passing over the successive German, French, and Spanish rulers who from 1194 to 1530 succeeded the Normans, we come to the great historical epoch of the dominion of the Knights of St. John of Jerusalem. This epoch commenced in 1530. The diplomatic and prevailing language of the order was the Italian and its literature was either Italian or Latin. In the same period were founded the Jesuit seminary, the university which succeeded it, and the bishop's ecclesiastical seminary. In 1798 the grand master of the order, Homspech, capitulated to the French. For nearly three centuries the order had ruled in Malta. To this day their palaces are memorials of their splendor and refinement. But it cannot be said that their thoughts had ever turned to the establishment of any system of popular education. With the zeal of propagandists the French at once set to work by decreeing various educational measures, including a requirement that the sons of the upper classes should be sent to France for their education. But the sway of the French was of too short a duration and of too perturbed a character to enable them to accomplish anything. Practically since 1800 and actually since 1814, Malta has been a British colony. What has been accomplished since that time will be seen from the following account:

In 1838 only three elementary schools were supported by the government: one at Valetta, one at Senglea, and one at Gozo. There were about 725 children at the schools of Valetta and Senglea, and at Gozo the attendance was reported to be inconsiderable. The total amount spent at that time upon elementary education was £400 a year. In 1844 there were 24 government primary schools in Malta and 4 in Gozo, besides a night school for adults in Zabbar and an industrial school for poor orphans in Florian, 30 schools in all. In 1880 the government institutions consisted of 1 university, with 168 students; 2 lyceums, with 474 pupils; 1 secondary school for girls, with 137 pupils; 1 secondary school for boys at Gozo, with 40 pupils; 63 primary schools in Malta, with 7,006 pupils (3,347 boys and 3,659 girls), and 16 primary schools in Gozo, with 740 pupils (356 boys and 384 girls)—total, 84 institutions, with 8,565 pupils, 4,385 boys and 4,180 girls.

Besides the educational establishments of the government, there are in Malta and

Gozo 125 private schools or seminaries, attended by about 2,710 pupils. These private institutions comprise the archbishop's ecclesiastical seminary, the bishop's seminary at Gozo, the Jesuit seminary at St. Julian, a few intermediate schools at Valetta, three boarding and day schools under the Sisters of Charity, the Sisters of St. Joseph, and the Sisters of the Good Shepherd, respectively, a large primary school under the Augustinian fathers in Valetta, and about 100 "adventure" schools with an average attendance of 18 pupils each.

The course of instruction in the public elementary schools for boys includes reading in Maltese, Italian, and English; writing, arithmetic, catechism, and sacred history; geography, elements of practical geometry, elements of botany; vocal music and gymnastics. In the girls' schools the course embraces reading in Maltese, Italian, and English; writing, arithmetic, catechism, and sacred history; geography, needlework, and vocal music. The total number of teachers and assistants in public primary schools is 246.

THIRD INTERNATIONAL GEOGRAPHICAL CONGRESS, VENICE, 1881.

The Bureau has just received the program of the Third Geographical Congress to be held in Venice in September, 1881, under the patronage of His Majesty the King of Italy. The congress will be in session from September 15 to September 22, and a geographical exhibition will be held from September 1 to September 30.

The congress and the exhibition are under the presidency of His Royal Highness the Duke of Genoa. The congress is composed of honorary, regular, and associate members.

Honorary members pay no fees, the regular members pay \$8, and the associate members \$3. Every member of the congress will be entitled to a personal ticket, to take part in the proceedings of the congress, to free admission to the exhibition, and to a copy of the transactions of the congress.

The congress will be divided into eight sections, viz: (1) Mathematical geography, geodesy, and topography; (2) hydrography; (3) physical, meteorological, geological, botanical, and zoölogical geography; (4) anthropological, ethnographical, and philological geography; (5) historical geography, history of geography; (6) economical geography, commercial and statistical geography; (7) methods, teaching, and diffusion of geography; (8) explorations and travels.

All the members must give notice of the section which they desire to join. Speakers may use any tongue they prefer.

Persons desirous of attending the congress must apply for an admission ticket to the executive committee of the International Geographical Congress, No. 26, Via del Collegio Romano, Rome, Italy. The fees—40 Italian lire (\$8) for a regular membership, or 15 lire (\$3) for an associate membership—must accompany the application. Payment may be made by money order to the executive committee or by a check on a bank in Rome to the order of the committee.

ILLITERACY AND CRIME IN FRANCE.

The latest number of the Journal des Bibliothèques Populaires, kindly forwarded to the Bureau of Education by the Société Franklin at Paris, contains the following interesting table showing the condition of crime and illiteracy in the following departments of France. The report does not give the year to which the statistics refer

Department.	Number of criminals—				Department.	Number of criminals—			
	Arrested.	Unable to read and write.	Reading and writing imperfectly.	Reading and writing well.		Arrested.	Unable to read and write.	Reading and writing imperfectly.	Reading and writing well.
Ain	57	15	38	4	Loiret	60	20	32	
Allier	33	16	11	6	Loir-et-Cher	45	10	10	
Alpes (Basses-)	22	9	10	3	Lot	26	13	10	
Alpes (Hautes-)	12	5	6	1	Lot-et-Garonne	53	30	22	
Alpes-Maritimes	36	17	17	2	Maine-et-Loire	52	21	23	
Ardèche	56	40	15	1	Manche	74	21	38	1
Ariège	21	8	10	3	Marne	48	14	26	
Aube	35	7	23	5	Meurthe-et-Moselle	35	8	31	
Aude	51	26	18	7	Morbihan	87	66	8	1
Bouches-du-Rhône	153	67	65	21	Nièvre	36	21	7	
Calvados	122	41	77	4	Nord	41	27	3	1
Cantal	26	17	8	1	Oise	54	20	16	1
Charente	44	21	21	2	Pas-de-Calais	28	7	17	4
Corrèze	23	18	4	1	Puy-de-Dôme	135	51	51	3
Corse	62	26	29	7	Pyrénées (Hautes-)	24	11	8	
Côte-d'Or	71	60	9	2	Rhône	90	24	45	2
Côtes-du-Nord	123	70	34	19	Saône (Haute-)	19	5	5	
Dordogne	54	20	16	18	Saône-et-Loire	64	30	26	
Drôme	77	25	85	17	Sarthe	45	18	27	
Eure-et-Loir	44	14	29	1	Savoie	23	4	18	1
Finistère	96	62	17	17	Savoie (Haute-)	41	10	27	4
Gard	72	32	81	9	Seine-et-Oise	74	20	34	2
Garonne (Haute-)	61	28	26	7	Seine-Inférieure	94	42	32	2
Gers	35	11	15	9	Sèvres (Deux-)	90	42	25	2
Gironde	95	42	38	15	Somme	51	25	21	
Indre	20	22	1	6	Tarn	10	12	7	
Indre-et-Loire	30	14	14	2	Var	51	24	27	
Isère	32	12	17	8	Vaucluse	45	19	26	
Jura	34	12	14	8	Vendée	24	11	8	5
Landes	20	13	6	1	Vienne	22	9	11	2
Loire	82	32	20	30	Vosges	87	9	26	2
Loire-Inférieure	50	30	12	17					
					Total	3,354	1,480	1,362	51

SCHOOL SAVINGS BANKS.

The establishment of school savings banks is originally a French idea. The first school savings bank was established by M. Dulac, a teacher of Mans, on the 4th of May, 1831. From 1836 to 1840 school savings banks were established at Amiens, Grenoble, Lyon, Paris, Périgueux, and several other French cities. The first penny bank in England was established at Greenock in 1837. School savings banks were established at Verona, Italy, in 1844, in Saxe-Weimar and Württemberg in 1846, in Prussia and Switzerland in 1851, in Hungary in 1860, in Belgium in 1839. In France the number of school savings banks is 10,261, with 213,135 depositors. The total amount deposited is 4,246,613 francs. Statistics of school savings banks in other countries are still wanting.

The savings banks bill passed the French Senate on the 29th of March. The bill raises the maximum deposits from 1,000 francs to 2,000 francs, which is still, however, less than the English maximum. The bill provides that married women and minors shall be allowed to deposit their savings notwithstanding opposition from the husband of the woman and the legal representative of the minor, and creates a post office savings bank on the model of the English system. The French post office savings bank will pay 3 per cent. interest and deliver a deposit book available all over France.

In the case of minors the success of the school savings banks, of which the promoter, M. de Malarce, counted 10,440 in 1879 and now over 13,000, was a conclusive argument for recognizing them as depositors.

The following is an account of the method employed by M. Laurent, the founder of school savings banks in Belgium :

In the fall of 1866, M. Laurent, professor at the University of Ghent, called a meeting of some of the directors of the city schools. He told them that saving must be taught, like virtues, by practice. Children are the best agents of social reform. The future laborers must learn the great importance of small savings. While small savings are of great value to all the children, they are especially so to the children of the poor, who receive more pennies than larger coins, and to whom the habit of saving will be the only means of success in later years.

M. Laurent thoroughly explained his plans to the directors, and he then went from school to school, to give the children lessons of economy. In October, 1866, two communal schools of Ghent had each a savings bank, and, thanks to the encouragement on the part of the communal council, the city school commission, and two liberal societies, the savings banks have been introduced into all the city schools. Of the 45,000 pupils of these schools, more than 13,000 have deposits, each exceeding one franc.

From Ghent the savings banks spread over the whole country, and the Belgian system was later introduced in several places in Germany, Holland, and Italy.

The following is the method of M. Malarce in France :

After having made arrangements with the nearest savings bank, the director of the school informs his pupils that he is ready to receive their small savings (the amount of the deposit must not exceed 5 francs), and that as soon as the deposits amount to one franc he will transfer them to the regular savings bank.

The director fixes a day in each week, when, at the beginning of the school, deposits will be received. He has before him a register, in which he enters the names of depositors and the amount deposited. Each pupil keeps a duplicate account on a single sheet of paper, with sufficient columns for the whole school year.

The above is the simple process as far as the school room is concerned. The transactions outside of the school room, the relations with the savings banks, are also very simple. In the beginning of every month the teacher adds the deposits of every pupil, and in case they exceed one franc he deposits the even francs at the savings

bank and keeps the amounts of less than one franc on the register of the school savings bank.

The bank books of the depositors are kept by the teacher as long as the pupils attend school. When a pupil leaves school, the book is handed over to his parents or guardians. No pupil can withdraw a part or the whole of his deposit without the consent of his parents or guardians.

According to the *Deutsche Schulgesetz-Sammlung* of March 3, 1881, the educational authorities of Breslau, Prussia, have instructed the district school inspectors to superintend the establishment of school savings banks in elementary schools. The authorities are not opposed to the introduction of saving in schools, but the banks should be organized on a uniform and simple plan. All transactions in connection with the savings bank must, however, be excluded from the regular school hours.

EDUCATION IN SHEFFIELD

The following is an abstract of the report of the Sheffield school board from November, 1879, to November, 1880:

The permanent schools of the board now supply room for 5,176 boys, 5,081 girls, and 6,231 infants, making a total of 16,488. There are also four temporary schools, with accommodation for 688, and further permanent provision is being made for 2,297 children. The total expenditure of the school board in 1879-'80 was 87,268*l*.

There were on the rolls of board schools, at the end of October, 21,327, and the average attendance during the week ended October 22, 1880, was 15,759. The average attendance at board schools for the whole year exceeds that of the previous year by 2,048. The accommodation in voluntary schools is about 26,633.

There were at the end of October, 1880, on the rolls of elementary schools within the borough 50,319 children, and during October there were 34,887 in average attendance, as against 32,880 in the month of October, 1879, the highest weekly average during 1880 being 36,362. The total number of teachers employed by the board is 376.

The number of depositors in board school penny banks was 2,942 in October, 1880, and the amount deposited was 975*l*.

The following table shows the number of children attending efficient elementary schools from the period at which the board commenced operations to October, 1880:

Year.	Yearly average.	Average attendance during the month of October in each year.	Highest weekly average.	Number on the rolls during October.
1871.....	11,985		15,165	
1872.....	14,052	17,821	18,224	
1873.....	18,820	23,282	23,629	35,053
1874.....	22,780	25,995	26,417	39,491
1875.....	25,367	27,614	28,301	41,317
1876.....	26,718	29,120	29,505	42,736
1877.....	28,270	31,275	31,640	44,680
1878.....	30,192	32,463	33,125	45,727
1879.....	31,522	32,880	34,374	47,422
1880.....	32,817	34,887	36,362	50,819

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.



LIBRARY AIDS.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, March 24, 1881.

The following article by Samuel S. Green, esq., the accomplished and well known librarian of the Worcester (Mass.) Free Public Library, answers many inquiries addressed to this Office as to the sources of information respecting the establishment and conduct of libraries.

It is impossible for the Office to publish at present fuller or more complete suggestions of this character.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.

LIBRARY AIDS.

It is very desirable that a library manual should be prepared and published. None exists. There are materials, however, for a good one in the contents of the five volumes of the *Library Journal* already published and of the Special Report issued at Washington in 1876, by the Bureau of Education, and entitled *Public Libraries in the United States of America*, their history, condition, and management.

I have been requested to call attention to the more important articles and papers in these publications, and by grouping them under appropriate headings make their usefulness more apparent than it is at present to the great body of librarians and persons interested in establishing and maintaining libraries.

I proceed, without further introduction, to do the work assigned to me, premising only that large portions of both publications having interest as history only, or because they describe different kinds of libraries, or give library news, will not be alluded to. The association referred to throughout this paper is the American Library Association.

LIBRARY LEGISLATION.

For instruction in regard to the history of this subject and the teachings of experience respecting the best forms for library laws, mention should first be made of the excellent Report on library legislation (*L. J.*, v. 4, p. 300), made by Dr. H. A. Homes, and to a paper which he read before making it, *Legislation for public libraries* (*L. J.*, v. 4, p. 262). The laws proposed as model legislation are printed in the *Library Journal*, v. 5, pp. 79, 109; read, also, in this connection, editorial notes on pp. 76 and 106, in the same volume.

Other articles on this subject which it is desirable to read are State legislation in the matter of libraries, by W. F. Poole (*L. J.*, v. 2, p. 7), *Free town libraries in the Spec. Rep.* (p. 445), and *Public library government* (*L. J.*, v. 2, p. 292). There is a record of a discussion which followed Mr. Poole's paper in the *L. J.*, v. 2, p. 20.

FOUNDATION OF LIBRARIES.

Note especially the Organization and management of public libraries, by W. F. Poole (*Spec. Rep.*, p. 476), *How to make town libraries successful*, by F. B. Perkins (*Spec. Rep.*, p. 419), *A word to starters of libraries*, by Justin Winsor (*L. J.*, v. 1, p. 1), *Some popular objections to public libraries*, by W. F. Poole (*L. J.*, v. 1, p. 45), and Rev. A. M. Pendleton's series of useful articles, *How to start libraries in small towns* (*L. J.*, v. 1, pp. 161, 213, 249, 313, 355, and 421).

LIBRARY BUILDINGS.

Attention should be called to *Library buildings*, by Justin Winsor (*Spec. Rep.*, p. 465), and to discussions on this subject at the meetings of the association in New York and Boston (*L. J.*, v. 2, p. 31, and v. 4, p. 292). Examine, also, *Hints for improved library economy*, drawn from usages at Princeton, by Frederick Vinton (*L. J.*, v. 2, p. 53), *Brown University Library* (*L. J.*, v. 3, p. 117), and *Elevator in Worcester Public Library* (*L. J.*, v. 4, p. 201).

VENTILATION, HEATING, AND LIGHTING.

Note *Ventilation of libraries*, by D. F. Lincoln, M. D. (*L. J.*, v. 4, p. 254), and *Warming libraries*, by A. M. Pendleton (*L. J.*, v. 5, p. 277). The subjects of ventilating and

warming library buildings demand fuller treatment than they have received. Much information regarding the use of the electric light for libraries has appeared in the *Library Journal*. I wish to call attention to the following articles, stating only in advance that Mr. Richard Garnett, who writes two of them, is keeper of the reading room in the British Museum, and that the electric light has been in use in this reading room for a considerable time. Perhaps it would be well to read the articles in the following order:

The Electric light at the British Museum reading room (*L. J.*, v. 4, p. 128), Electric light [in the British Museum], in a letter of Richard Garnett (*L. J.*, v. 4, p. 444), Electric light in the British Museum (*L. J.*, v. 5, p. 153), The electric light at the British Museum: a letter from Richard Garnett (*L. J.*, v. 5, p. 171). Discussion is still going on as to the safety of this light at the British Museum. Mr. W. H. Preece, a gentleman whose special acquirements entitle his opinion to respect, is understood to take an adverse view of the matter. On the other hand, we understand that a distinguished American authority in matters of this kind, Prof. John Trowbridge, of Harvard College, states that great advances have been made lately in the direction of rendering the electric light available for illuminating purposes.

Articles treating of the effects of gas in disintegrating leather will be referred to under the heading Binding.

BIBLIOGRAPHY.

One of the latest and best lists of books of reference needed by the officers of libraries is that contained in Mr. Winsor's paper in *College libraries as aids to instruction*. This pamphlet was issued by the Bureau of Education as Circular of Information No. 1, 1880.

In the Special Report issued in 1876 by the Bureau of Education we have *Works of reference for libraries*, by A. R. Spofford (p. 686), *Library bibliography (containing lists of books of reference and of articles in periodicals concerning libraries)*, by A. R. Spofford (p. 733), *Scientific libraries in the United States*, by Prof. Theodore Gill (p. 183), an article which mentions the best special bibliographies in the different branches of science, namely, anatomy, chemistry, &c., and *Medical libraries in the United States*, by Colonel J. S. Billings (p. 171), in which are scheduled the leading reference works needed in medical bibliographical work.

In Part II of the Special Report we have as Appendix II to Mr. Cutter's Rules, &c., a list of bibliographical works needed by the cataloguer. Mr. Cutter also states here where fuller lists may be found.

The librarian who consults these lists has to be on the lookout to see that the latest edition of a work is given in them and that supplementary volumes have not been published to works there recorded. For example, a new edition of that very important work Vapereau's *Dictionnaire universel des contemporains* has just been completed, and supplementary volumes of Brunet's *Manuel* have been published within a short time.

!A sure resource in case of doubt is to read over the lists under the proper headings prepared by Mr. Cutter for the department "Bibliography" in the successive numbers of the *Library Journal*. The *Library Journal* has other valuable bibliographical matter. We note the following article: *Reference books in English*, by Justin Winsor (vol. 1, p. 147).

The portion of the latest edition of the *Handbook for readers with regulations* issued by the Boston Public Library entitled "*Books on special subjects, how to find them*," contains a valuable list of reference books.

The *Chronological index to historical fiction*, and the *Annotated catalogue of books in the Lower Hall*, of the classes of history, biography, and travel, also issued by the Boston Public Library, are of great service in supplying humble bibliographical needs. Elaborate and valuable bibliographies appear in the bulletins issued by the library of Harvard College, and it is to be hoped that this library will have money placed at

its disposal in sums adequate to enable it to do a large amount of this kind of work. Similar bibliographies have been published in some of the bulletins of the Boston Public Library. The lists of books issued by the Boston Athenæum, the St. Louis Public School Library, the Young Men's Library in Buffalo, and the Free Public Library in Worcester, and the lists prepared by Mr. W. E. Foster, of Providence, for the State superintendent of schools in Rhode Island, are valuable for bibliographical purposes.

Some of the best library catalogues are very useful, such, namely, as that of the Boston Athenæum, the Brooklyn Library, and the subject catalogue of the Library of Congress.

Especial mention should be made here of the American Catalogue, compiled by L. E. Jones and published by Frederick Leypoldt, and it should be stated distinctly that the libraries of the country are very much indebted to Mr. Leypoldt for carrying through such an undertaking as this valuable but unremunerative work, and for his generous conduct in publishing the Library Journal, although incurring heavy loss in doing so.

Attention should be called to the fact that Poole's Index to Periodical Literature will soon be published, and allusion should be made to the useful indexes which we have of the North American Review (1815-1877), Christian Examiner (1824-1869), Bibliotheca Sacra (vols. 1 to 30, through the year 1873), Harper's Monthly (vols. 1 to 60, June, 1850, to June, 1880), Scribner's Magazine (vols. 1 to 10, Nov., 1870, to Oct., 1875,) the Atlantic Monthly, both that issued by its publishers (1857-1876) and a Supplementary Index to the Atlantic Monthly, giving gleanings from the volumes already indexed and indexing subsequent volumes up to the beginning of 1881, issued in Bangor, Maine, by Q. P. Index; to other indexes emanating from the same quarter, namely, a General Index to the Nation (July, 1865-Sept., 1880), and General Index to the International Review (1874-1880); also to other indexes which are promised by this publisher, such as indexes to Lippincott's Magazine and to Scribner's Magazine (vols. 1-20), and to another index still, which is promised by Q. P. Index conditionally upon the receipt of a sufficient number of subscribers, namely, An index to articles on history, biography, travel, philosophy, literature, and politics contained in collections of essays, &c., to the New York Daily Tribune Index (1875-), Palmer's Index to the Times Newspaper (January 1, 1863-Sept. 30, 1880, which is still published, and is working back as well as forwards), (to say nothing of the indexes to foreign English reviews and the Revue des Deux Mondes), to the Chronicles of facts and events, in the successive annual volumes of the Boston Almanac, the Record of current events of Harper's Magazine, the Week in the Nation, lists of important events appearing in newspapers at the close or beginning of every year, and Annals of our time, with supplements, by Joseph Irving (1837-July 22, 1878).

CATALOGUING.

A history of catalogue making and a criticism of the different kinds of catalogues are contained in the article Library catalogues, by C. A. Cutter, in the Special report (p. 536). Persons interested should study this paper, for it is very important to learn what experience has taught before undertaking to make a catalogue. Part II of the Special report is Rules for a printed dictionary catalogue, by C. A. Cutter. We have here the first printed rules for making a catalogue on the dictionary plan. The writings of Mr. Cutter on the subject of cataloguing and the work he has done in preparing catalogues have shown that he is an authority in this matter second to none.

For expositions of other systems of cataloguing, mixed and classed, see Catalogues and cataloguing, by S. B. Noyes, Jacob Schwartz, John J. Bailey (Special Rep., p. 648), and the remarks of Melvil Dewey in Decimal classification and subject index (Spec. Rep., p. 623).

Four volumes of the catalogue of the Boston Athenæum (A-S) have been issued, and it is hoped that the work will be completed before the close of the present year. This is the best example that we have of a printed catalogue prepared on the dic-

tionary plan. It was made by Mr. Charles R. Lowell, but has been carefully revised and greatly improved by Mr. Cutter during its preparation for printing, and although he is unwilling to have it regarded as his ideal catalogue, yet, owing to his work, it has proved the most valuable contribution yet made anywhere to the list of printed catalogues of large libraries.

Mr. Noyes's catalogue of the Brooklyn Library is now complete. It is constructed on the dictionary plan, with modifications, the most important of which are the introduction in alphabetical order of carefully classed lists of books on the various branches of knowledge and the frequent use of references to periodicals. Mr. Noyes's catalogue is an admirable piece of work and one for which all students are indebted to him.

The report of the committee on uniform entries, appointed at the meeting of the association in New York, is published in the *Library Journal* (v. 3, p. 12), and the majority report there given contains the rules for cataloguing that stand as the rules recommended for use by the American Library Association until amended by it.

With Mr. Cutter's rules, this report, and good catalogues, such as those of the Boston Athenæum and the Mercantile Library Association of Brooklyn, at hand, libraries are now well equipped for beginning under guidance the work of good cataloguing.

We do not realize how great our indebtedness is to the institutions which have incurred the expense of issuing the best printed catalogues. Why do not all librarians buy both of the catalogues just mentioned for the sake of the advantages to themselves which would result from their free use and to encourage other institutions to issue similar catalogues? With the rules we now have and the good examples of catalogues which we may acquire by purchase at what, considering their cost, is a nominal price, the work of cataloguing is half done, and can be intrusted to skilful persons who have had only elementary training in this kind of work with a little supervision on the part of a specially trained cataloguer.

As examples of annotated catalogues, we must still refer to the catalogue of the books in the Lower Hall of the Boston Public Library of the classes of history, biography, and travel, the fiction list of the same library, and to the catalogue of the Public Library at Quincy, Mass. Excellent papers on cataloguing are those read at the Boston meeting of the association, by Fred. B. Perkins and James L. Whitney, entitled, respectively, *Classification in dictionary catalogues* (*L. J.*, v. 4, p. 226) and *Catalogues of town libraries* (*L. J.*, v. 4, p. 262). See, too, Mr. Garnett on *Public libraries and their catalogues*, by C. A. Cutter (*L. J.*, v. 4, p. 452). It should be noted here with great satisfaction that Congress has enabled Dr. J. S. Billings to issue the first volume (A-Berliński) of his valuable *Index catalogue of the Library of the Surgeon-General's Office, United States Army*. Reference should be made to the lists of additions issued by several libraries, which are mentioned by name under the head of *Bibliography*, and to the *Index Medicus*, a monthly classified record of the current medical literature of the world, compiled under the supervision of Dr. John S. Billings and Dr. Robert Fletcher.

An inexpensive catalogue is described in the *Library Journal* (v. 1, p. 436).

There is much interesting matter about indexing in the *Special Report* and in the *Library Journal*, particularly in the latter. Thus we have *The plan of the new Poole's Index*, a library symposium, by S. B. Noyes, Justin Winsor, F. B. Perkins, J. L. Whitney, J. Schwartz, W. I. Fletcher, C. A. Cutter (*L. J.*, v. 3, p. 141); *The Index symposium and its moral*, by W. F. Poole (*L. J.*, v. 3, p. 178); *Some points in indexing*, by W. I. Fletcher (*L. J.*, v. 4, p. 243); and *Book indexes*, by F. B. Perkins (*Spec. Rep.*, p. 727).

Added to the report of the committee on uniform title entries are a general list of abbreviations and what are known as Cutter's abbreviations of Christian names (*L. J.*, v. 3, p. 16). Note, also, *Months in brief entries*, by Mr. Dewey (*L. J.*, v. 4, p. 93) and *Abbreviations for feminine names*, by C. A. Cutter (*L. J.*, v. 5, p. 176). Appended to the report above mentioned on Uniform title entries, is a subreport on

Sizes (L. J., v. 3, p. 19), which contains the results of much thought on the part of our best cataloguers. There is much more on this matter in the Library Journal, which may be found by the use of the indexes of that periodical. Mr. Cutter treats The use of capitals in the Library Journal (v. 1, p. 162). Mr. Whitney's Pseudonyms and anonyms, in different numbers of the Library Journal, must not be overlooked; they are valuable.

For a description of the different kinds of catalogues in use in public libraries, besides the kinds already considered see Appendix I to Mr. Cutter's Rules, &c., in the second part of the Special report. A discussion of interest was started by Justin Winsor's Shelf-lists *vs.* Accession catalogues (L. J., v. 3, p. 247). Articles in which views different from those of Professor Winsor are expressed are Shelf-lists *vs.* Accession catalogues, by W. F. Poole (L. J., v. 3, p. 324), and The accessions catalogue again, by F. B. Perkins and Melvil Dewey (L. J., v. 3, pp. 336-338).

Note Brass guide boards for card catalogues, by C. A. Cutter (L. J., v. 5, p. 215).

THE NUMBERING OF BOOKS AND THEIR ARRANGEMENT AND CLASSIFICATION.

Read first two series of general articles by Melvil Dewey, namely, Principles underlying numbering systems (L. J., v. 4, p. 7 and p. 75) and Arrangement on the shelves (L. J., v. 4, p. 117 and p. 191).

There have been two interesting and important discussions of these subjects in the Library Journal. Both were started by articles written by J. Schwartz, of New York.

In the first discussion the articles succeeded one another in the following order: A combined system for numbering and arranging, by J. Schwartz (L. J., v. 3, p. 6); Another method of numbering books, by C. A. Cutter (v. 3, p. 248); Mr. Cutter's numbering system, by J. Schwartz (v. 3, p. 302); Numbering: rejoinders to Mr. Schwartz, by M. Dewey and C. A. Cutter (v. 3, p. 339); Plans for numbering, with especial reference to fiction; A library symposium, John Edmands, J. N. Larned, M. Dewey, C. A. Cutter, F. B. Perkins (L. J., v. 4, p. 38).

The second discussion began with an article by Mr. Schwartz, entitled A mnemonic system of classification (L. J., v. 4, p. 3), which was followed by the Schwartz mnemonic classification, M. Dewey, F. B. Perkins, C. A. Cutter (L. J., v. 4, p. 92), and Classification on the shelves, by C. A. Cutter (L. J., v. 4, p. 234).

See, also, Mr. Cutter defends his modifications of the Dewey plan (L. J., v. 4, p. 17), and Mr. Cutter continues (L. J., v. 4, p. 88). Other important articles are: A proposed modification of the Amherst classification in mathematics, astronomy, and physics, by Lord Lindsay (L. J., v. 4, p. 149), and Classification for the natural sciences, by C. A. Cutter (L. J., v. 5, p. 163). Send to Mr. Cutter to buy the latest printed details of his system. Look at the last report (1880) of the librarian of Harvard College. Consult Decimal classification and subject index, by M. Dewey, in Special Report (p. 623). See also British Museum Shelf-classification, by R. Garnett (L. J., vol. 2, p. 194), and Author catalogues in classified shelf systems, by C. A. Cutter and Melvil Dewey (L. J., v. 3, p. 371).

ADMINISTRATION.

Consult especially reports of the coöperation committee of the American Library Association, to be found in different numbers of the Library Journal. This committee, of which Mr. Cutter has been chairman, has made recommendations of the best methods and appliances in library matters, after careful examination of all proposed plans and suggestions. It has reached decisions on such subjects as accession catalogue, shelf catalogue, binders, printed numbers, call slips, catalogue slips, covering paper, size of catalogue cards, &c. W. F. Poole's elaborate contribution to the Special Report on the Organization and management of public libraries (p. 476) is of great importance. Refer also to Proceedings of the Conference of Librarians at Philadelphia in 1876 and of the meetings of the American Library Association in New York

and Boston, as reported in the *Library Journal*. Examine, too, Notes and queries in different numbers of the *Library Journal*.

For instruction in regard to the best methods in use for charging books and for criticism of various methods, read first an admirable series of articles in the *Library Journal*, by Melvil Dewey, entitled, respectively, Principles underlying charging systems (L. J., v. 3, p. 217); Charging systems based on accounts with borrowers (L. J., v. 3, p. 251); Charging systems based on accounts with books (L. J., v. 3, p. 285); and Charging systems: a new combined plan and various details (L. J., v. 3, p. 359). Consult, also, Systems of charging loans and an improved slip-case, by Frederick Jackson (L. J., v. 3, p. 230); The charging system at Harvard, by Justin Winsor (L. J., v. 3, p. 338); Another charging plan, by C. A. Cutter (L. J., v. 4, p. 17); A "combined" charging system, by J. Schwartz (L. J., v. 4, p. 275); Mr. Cutter's charging system, by C. A. Cutter (v. 4, p. 445); More about charging systems, by C. Estabrook, J. Schwartz, Melvil Dewey (L. J., v. 5, p. 72); and New charging system in use in the Providence Public Library (L. J., v. 5, p. 320).

Mr. W. F. Poole read at the Boston meeting of the association an interesting paper entitled Spread of contagious diseases by circulating libraries (L. J., v. 4, p. 258); Mr. W. B. Clarke read at the same meeting a paper on Book thieving and mutilation (L. J., v. 4, p. 249); examine, also, in this connection Conviction for book thieving (v. 4, p. 377); and Capture of a notorious book thief, by Samuel S. Green (L. J., v. 5, p. 48).

In regard to the disposition to be made of the pamphlets, consult Preservation of pamphlets, by C. A. Cutter (L. J., v. 1, p. 51); Proceedings of the conference of librarians at Philadelphia (L. J., v. 1, pp. 101, 104); Pamphlets (in an article by A. R. Spofford, on the binding and preservation of books, Spec. Rep., p. 677) and Treatment of pamphlets in special libraries, by E. S. Holden (L. J., v. 5, p. 166). For the recommendations of the association in regard to library statistics, see report of the coöperation committee (L. J., v. 1, p. 429), and the amendments made to, the report by the association at its New York meeting (L. J., v. 2, p. 37). Note, also, Library statistics, by Samuel S. Green (L. J., v. 5, p. 83), and Library statistics, by W. E. Foster (L. J., v. 5, p. 107).

Other interesting articles and papers in the *Library Journal* and Special report to which attention may properly be called under the heading Administration are Branch libraries (L. J., v. 1, p. 288); A self-supporting collection of duplicate books in demand, by F. M. Crunden (v. 4, p. 10); Book selections, by Melvil Dewey (v. 1, p. 391); Civil service reform in public libraries (v. 5, p. 113); Book auction catalogues and their perils, by A. R. Spofford (v. 3, p. 53); Alphabetizing catalog cards, by Melvil Dewey (L. J., v. 5, p. 176). See also Spec. Rep., p. 730; Delinquent notices and check box, by Melvil Dewey (L. J., v. 3, p. 370); and Duplicating processes, by Melvil Dewey (L. J., v. 4, p. 165). References on many other subjects in which persons having the charge of libraries are interested would have been given here had room allowed. They are less necessary, since the excellent indexes which Mr. Cutter and Mrs. Dewey prepare for the *Library Journal* enable inquirers to find readily what it contains concerning any matter of interest. Look there and in the Special Report for such subjects as Indicators, Gum tragacanth as a library paste, Embossing stamps (for the covers of books), The Sunday use of libraries, &c.

* BINDING.

Consult Binding and preservation of books, by A. R. Spofford (Spec. Rep., p. 673); Library memoranda, by Justin Winsor (Spec. Rep., p. 712); Bindings for a public library, by F. P. Hathaway (L. J., v. 4, p. 248); On binding, by Sir Redmond Barry (v. 2, p. 203); Before rebinding, by Edward G. Allen, of London (L. J., v. 5, p. 214); Buckram binding, by E. B. Nicholson (L. J., v. 2, p. 207), Buckram (L. J., v. 2, p. 34); and The use of buckram, linoleum, and cretonne for binding, by E. B. Nicholson in Proceedings of the United Kingdom Association (L. J., v. 5, p. 304).

In the article last referred to, Mr. Nicholson, the first man to recommend the use of

buckram as a binding, withdraws his recommendation. It should be stated, however, that some librarians still regard buckram as a useful material for binding.

On the restoration of books, see L. J., v. 2, p. 24.

For the effects of gas and heat on bindings, see Gas and heat (L. J., v. 1, p. 124); Gaslight and bindings, by F. B. Perkins (L. J., v. 3, p. 64); The deterioration of bindings, a letter from Prof. Wolcott Gibbs to William W. Greenough, president of the board of trustees of the Boston Public Library (L. J., v. 3, p. 229); Gas, in article on ventilation by D. F. Lincoln, M. D. (L. J., v. 4, p. 255); On the deterioration of library bindings, by Prof. W. R. Nichols (L. J., v. 4, p. 435); communication from William Hand Brown, of the Johns Hopkins University, on Bindings deteriorated without gas (L. J., v. 5, p. 50); and Deterioration of bindings, by H. A. Homes (L. J., v. 5, p. 213).

For Insect pests in libraries, see an article with this title, by Prof. H. A. Hagen, in the Library Journal (v. 4, p. 251); The croton bug as a library pest (v. 4, p. 376), and Library pests (v. 4, p. 448).

LIBRARIES AS EDUCATIONAL INSTITUTIONS.

Examine for information on this subject Public libraries in manufacturing communities, by W. I. Fletcher (Spec. Rep., p. 403); Public libraries and the young, by W. I. Fletcher (Spec. Rep., p. 412); Personal relations between librarians and readers, by Samuel S. Green (L. J., v. 1, p. 74); The usefulness of public libraries, as illustrated by the experience of the library at Worcester, Mass. (L. J., v. 5, p. 114); On library lectures, by W. E. A. Axon (L. J., v. 3, p. 47); Library lectures and other helps, by Justin Winsor (L. J., v. 3, p. 120); Library questions and answers, by Justin Winsor (L. J., v. 3, p. 159); Methods of securing the interest of a community, by W. E. Foster (L. J., v. 5, p. 245); Free reading-rooms, by William C. Todd (Spec. Rep., p. 460), and the 28th annual report of the trustees of the Boston Public Library (1880), p. 18 (to find an account of the work done by Thomas H. Cummings and Mary A. Jenkins while stationed near the catalogue of the Lower Hall to give assistance to inquirers).

For the consideration of the place of libraries in college instruction and for the treatment of kindred subjects, consult College libraries as aids to instruction (Circular of Information No. 1, 1880, issued by the Bureau of Education, which contains important papers by Prof. Justin Winsor and Prof. O. H. Robinson); College library administration, by O. H. Robinson (Spec. Rep., p. 505); Professorships of books and reading [to teach how to read], by F. B. Perkins and William Mathews (Spec. Rep., p. 230 and p. 240); Learning to read in college, by R. R. Bowker (L. J., v. 2, p. 60); Class-room bibliography (L. J., v. 2, p. 66); Use of college libraries, in an extract from a report by Justin Winsor (L. J., v. 5, p. 47); The college library and the classes, by J. Winsor (L. J., v. 3, p. 5); Open shelves at Brown University, by R. A. Guild (L. J., v. 5, p. 210); Third report (1880) of Justin Winsor as librarian of Harvard University.

Consult, for information regarding the connection of schools and libraries, The relation of the public library to the public schools, by Samuel S. Green (L. J., v. 5, p. 235); The public library and the public schools, by C. F. Adams, jr. (L. J., v. 1, p. 347), and Mr. W. E. Foster's admirable articles The school and the library: their mutual relation (L. J., v. 4, p. 319), The relation of the libraries to the school system (L. J., v. 5, p. 99), How to use the public library: suggestions for the use of pupils (L. J., v. 4, p. 447), and Aimless reading and its correction (L. J., v. 4, p. 78). Examine also Reading in the public schools, by Robert C. Metcalf (L. J., v. 4, p. 343), and Public library and public schools, by Mellen Chamberlain (L. J., v. 5, p. 299).

In regard to the fiction question, refer to Sensational fiction in public libraries, by Samuel S. Green (L. J., v. 4, p. 345); portions of a paper entitled Some popular objections to public libraries, read at the Philadelphia conference, by W. F. Poole (L. J., v. 1, p. 45); Reading in popular libraries, by Justin Winsor (Spec. Rep., p. 431); Free libraries and readers, by Justin Winsor (L. J., v. 1, p. 63); Fiction in public libraries

and educational catalogues, by C. F. Adams, jr. (L. J., v. 4, p. 330); Popular reading [citations from the London Saturday Review and London Telegraph, the latter containing J. S. Mill's views on fiction] (L. J., v. 1, p. 223); Fiction in free libraries, by P. Cowell of Liverpool (L. J., v. 2, p. 152); Fiction in libraries; an extract symposium (L. J., v. 3, p. 196); Responsibility of parents in the selection of reading for the young, by Kate Gannett Wells (L. J., v. 4, p. 325); Evil of unlimited freedom in the use of juvenile fiction, by Miss M. A. Bean (L. J., v. 4, p. 341); Addresses of James Freeman Clarke, T. W. Higginson, and others, at the Boston meeting of the association (L. J., v. 4, p. 355 et seq.); As to novel reading, a confession, by Peccator (L. J., v. 5, p. 104), and Class adaptation in the selection of books—the fiction question (a communication of S. S. Green in answer to Peccator) (L. J., v. 5, p. 141). For an example of radical opposition to the presence of any novels in a public library, see Fiction in public libraries, by William Kite (L. J., v. 1, p. 277). In the proceedings of the Philadelphia conference, there is a discussion on novels in libraries (L. J., v. 1, p. 96); so also in the proceedings of the London conference (L. J., v. 2, p. 255).

For a list of the best hundred novels, see an article by F. B. Perkins in the L. J., v. 1, p. 166. There is an interesting paper on Sunday school libraries by Miss Martha H. Brooks in Library Journal, v. 4, p. 338. Attention should be called to the admirable selected lists of books needed in the investigation of various subjects issued by Mr. Foster, of Providence, of which several have been published in the Library Journal,¹ and to Mr. Foster's article, Reference lists on special topics, with specimens of lithogram bulletins (L. J., v. 5, p. 38). References to Mr. Foster's lists and to a list of works on political economy and political science, by Professor W. G. Sumner, are given in a note.

NEED OF TRAINED LIBRARIANS.

Examine Library science a special study at the (German) universities, by Rullman (Spec. Rep., p. xxiv); Apprenticeship of librarians, by Melvil Dewey (L. J., v. 4, p. 147), and Consulting librarianship, by Melvil Dewey (L. J., v. 5, p. 16).

CONCLUSION.

In closing, it should be stated that there is much discussion in the Special report and Library Journal concerning improvements which it is to be hoped will be some time introduced. Such subjects are treated there as coöperative cataloguing, coöperative indexing of periodicals (as supplementary to the work done by Mr. Poole in his Index of Periodical Literature, soon to be issued), the supply by publishers of catalogue slips with books sold to libraries and individuals, the distribution of public documents, a clearing house for duplicates, &c.

Progress is continually being made in respect to methods of housing and administering libraries. Librarians should, therefore, read carefully the successive issues of the Library Journal (N. Y., Frederick Leypoldt), the reports of the meetings of the American Library Association, and such works as are issued in the interest of libraries by the United States Bureau of Education.

The report of the meeting of the American Library Association held in Washington in February, 1881, will soon be published as a supplement to the Library Journal.

¹ Political Economy and Political Science, by W. G. Sumner (L. J., vol. 5, p. 17); Hawthorne (L. J., vol. 5, p. 40); The Irish landlord and his tenant (L. J., vol. 5, p. 40); Reading (L. J., vol. 5, p. 41); Hume (L. J., vol. 5, p. 42); Should parochial schools be established in the U. S.? (L. J., vol. 5, p. 80); Will the publication of Charles Dickens's letters enhance his fame? (L. J., vol. 5, p. 81); Should legal-tender notes be withdrawn from circulation? (L. J., vol. 5, p. 81); Is a change in English orthography desirable? (L. J., vol. 5, p. 81); Herbert Spencer (L. J., vol. 5, p. 111); William Ellery Channing (L. J., vol. 5, p. 112); International copyright (L. J., vol. 5, p. 112); Gladstone's political integrity (L. J., vol. 5, p. 113); U. S. Constitution (L. J., vol. 5, p. 172); U. S. Constitution, continued (L. J., vol. 5, p. 222); Founding of Boston (L. J., vol. 5, p. 288); Henry Wadsworth Longfellow (L. J., vol. 5, p. 290); Robert Burns (L. J., vol. 5, p. 290); The Foundation of the American Colonies (L. J., vol. 5, p. 329); The Alienation of the American Colonies (L. J., vol. 5, p. 329).

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION.

THE DISCIPLINE OF THE SCHOOL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, August 12, 1881.

The following article on the discipline of the school, by Hiram Orcutt, LL. D., was issued as a circular by this Office in 1871, in answer to earnest appeals from teachers. It has been for some time out of print; its usefulness having been fully established and frequent calls being made for it, it is now reissued.

JOHN EATON,
Commissioner.

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THE DISCIPLINE OF THE SCHOOL.

Schoolmaster, schoolmistress, or school teacher does not fully describe the person who educates our children. He is a school disciplinarian. In other words, a good disciplinarian must be a good teacher; for correct teaching is one mode of discipline. And for the same reason, a good teacher is a *good* disciplinarian. Nor can good discipline or instruction be found in the school that is not managed with ability and skill.

DISCIPLINE IS EDUCATION.

Indeed, discipline is itself the great educational process. The well disciplined alone are well educated. Hence the great business of the teacher is to discipline his pupils. He cannot "add to their stature one cubit," nor to their mental or moral capacity one new power; but he can bring them under such a process of training as will subdue their wild and untamed impulses, develop the latent energies of body, mind, and soul, and direct them to a course of right action; so that the future citizen and lawgiver may be fitted for his great work and high destiny.

WHAT SCHOOL DISCIPLINE IS.

The "discipline of the school" has reference to all the regulations and prohibitions and restraints and stimulants which are calculated to regulate the habits of study and deportment through the interesting and important period of school life.

The object to be secured is twofold, viz, school vices must be prevented or cured and school virtues must be cultivated. Among school vices, as they have been classified, are idleness, whispering, disorderly movements in the school room, injury to property, and rudeness of speech or act in the intercourse of every day life. The school virtues to be cultivated are suggested as the opposites of these, viz, regularity of attendance, promptness, obedience, truthfulness, earnestness, diligence, kindness, neatness, and thoroughness in the preparation and recitation of lessons; and these are to be secured, not only to promote the business of the school room, but also for their influence in forming habits and character.

HOW SCHOOL DISCIPLINE IS TO BE APPLIED.

Our attention may now be directed to the disciplinary agencies to be employed in the successful management, government, and instruction of a school.

1. *Thorough organization and classification.*— I have seen the school in operation so perfectly systematized, all its arrangements so complete and its departments so perfectly adjusted, that the workings of its machinery not only produced no friction, but created order, interest, and zeal, such as secured the desired object. I have seen these arrangements so perfect as not only to prevent general disorder but to punish wrong without the agency of the teacher. On the other hand, I have often witnessed the utter failure of apparently competent masters for the want of system in the arrangement and classification of their schools.

ORGANIZATION THE FIRST NECESSITY.

Organization is the first business of the school room, and nothing else should be attempted until this is accomplished. The object in view is that systematic arrange

ment and uniformity which will secure good order and promote studiousness. To this end, the pupils should be so seated that they will appear uniform, and not disturb each other in the necessary movements of the day; the rogues should be separated, and every temptation to idleness and mischief removed. A complete division of time into periods for study, recitation, and play is also necessary. A time for disorder is, however, just as necessary as a time for study; hence the teacher must provide, not only regular recesses for freedom in the open air, but also occasional recesses from study (say two minutes) for the purpose of opening the safety valve of mischief and giving opportunity to whisper, ask questions, leave seats, and attend to all other necessary irregularities not allowed at other times. In this way, the least excuse for indulgence during the quiet hours of study and recitation is removed. The teacher can now insist upon perfect order while order is the law.

CLASSES.

In the classification great pains should be taken to have as few classes as possible, and to have each pupil assigned to his appropriate sphere, where he will work easily and successfully, with his time fully occupied, and to have each class control its own specific time and place of recitation without change or interruption.

In the government of the school, the regulations necessary to secure order and proper discipline must not only be fixed and uniform but fully made known to every pupil, that there may be concert of action and a harmonious working of all its members.

Every teacher should, therefore, at the opening of his school, announce and explain the principles and facts upon which it is to be governed. These necessary school laws must be strict and promptly enforced. It is much easier and more merciful to govern perfectly than partially. A system of discipline, to gain the respect of the pupils and accomplish its object, must be inflexible, earnest, strong, thorough. The very fact of such a government has a silent but powerful influence in preventing evil and securing obedience and fidelity.

THE TEACHER'S WILL SUPREME.

2. *All school laws must be based upon authority.*—This is the very germ and only foundation of good government. It must be distinctly understood that persuasion may never take the place of authority in school management. When, however, the *right* to maintain authority is not questioned by the pupil or after he has been subdued to obedience, we may persuade, invite, and win. But kindness cannot supply the place of authority. Obedience is not a voluntary compliance with a request, but a hearty response to acknowledged authority—an implicit yielding to a command. Such obedience, prompt and unreserved, is the duty of every pupil. This is a government, not of persuasion, not of reasons assigned, not of the will of a majority, but of one master. From this decision there may be an appeal, but disobedience never.

INSUBORDINATION TO AUTHORITY A CHARACTERISTIC OF THE PRESENT DAY.

The present is an age of insubordination, and can we doubt that this has resulted from the loss of authority in the family and school? Parents and teachers have abandoned the principles of government established by our fathers. They no longer enforce obedience, but attempt to purchase it by a promised reward. Money, sugar plums, or some other desired indulgence is offered, and given, as a condition of submission. Now, mark the effect of such discipline upon the child. Who conquers in this instance? The *pupil*, and not the *master*. And he soon learns that disobedience is the best currency at his command to purchase the desired favor; hence his stubbornness becomes more persistent, and his impudence more intolerable, as he desires the greater reward. Insubordination becomes a habit, and he soon loses all respect for authority and those who exercise it over him, and grows up in reckless disregard of the laws under which he lives. We have had fearful illustrations of this fact in the his-

tory of the family, school, and nation during the last few years. School law has its disciplinary power and influence while yet unbroken, and when no penalties appear. Indeed, the very object of school law is to prevent, and not to punish, evil. The necessity of punishment as often results from the absence of rigid authority as from any other cause. And I assume it as an axiom, that, so far as the conduct of the pupil can affect the welfare of the school, he should be subject, at all times and everywhere, to the control of the teacher. If *he* is to be master of the situation, his jurisdiction must not be confined to school hours, nor the school room, but must extend equally to all the days and weeks of the term and to every place where the pupil's influence may be felt for good or evil.

INDUSTRY AN AID TO DISCIPLINE.

3. *Another important agency in school discipline is work.*—Both the master and his pupils must work. Indolence in him begets idleness and recklessness in them. Life, energy, and industry manifested by him will be at once reproduced in them. The teacher must work to fit himself for his high calling and to elevate his profession. He must work for his school, to interest and benefit his patrons, to rouse and inspire his pupils, and to prepare himself for his daily teaching. Indeed, the true teacher is always reading, thinking, or acting for his school. He succeeds, also, in making his pupils work; not so much, however, by direct effort, as through the influence of a well managed and well governed school. With children of common physical and mental ability, it is not often necessary to enforce industry. It is the teacher's business, rather, to direct and control this activity, in a systematic process of self culture and development.

STUDIES SHOULD BE ADAPTED TO SCHOLARS.

The studies pursued must be adapted to the capacity and standing of each scholar, not so difficult as to cause discouragement nor so easy as to allow idleness. His time must be fully occupied and his energies severely tasked. If his lessons could be learned without effort, his school life would so far be without profit; but, industrious and laborious, he not only needs no outward discipline, but is sure of improvement.

PUBLIC OPINION A POWERFUL ALLY.

4. *Still another moulding and controlling power in the school room is public opinion.*—This must be created and directed by the master, or he is powerless. And first of all he must create a favorable opinion of himself; that is, must gain the confidence of his patrons and pupils. To this end he must form an intimate acquaintance with both parents and pupils; he must interest himself in what interests them, and adapt himself to their varying tastes and peculiarities. On terms of friendship and in full sympathy with all, he is prepared to secure their coöperation, and thus carry out his plans and purposes for the welfare of his school. But the master will not secure the confidence of his pupils by an attempt to gratify all their wishes. The reckless are always the first to find fault with loose discipline. If he would be respected in his office, he will govern with sternness and vigor, and yet he must always act with kindness, magnanimity, and justice.

Public opinion must also be employed to secure good order, control recklessness, subdue rebellion, and crush out the evil tendency of bad habits. Whatever is right and proper and necessary to make a good school must be made popular. Whatever is wrong and of evil tendency must be made unpopular. This can be done, but the teacher must have skill, patience, and perseverance.

QUINCY SCHOOL.

When Superintendent Philbrick was master of the Quincy School, in Boston, he had charge of seven hundred pupils, gathered promiscuously from the district. The school building had been erected and occupied several years, and yet I was told by him that

not a mark of pencil or knife could be found upon the benches or walls of the building, or even upon the playground fence. I inquired how such a remarkable result had been secured. His reply was, "By piling on motives"—by the power of public opinion.

RECREATION ESSENTIAL TO DISCIPLINE.

5. *Mental and physical recreation are important disciplinary agencies.*—The mind and body are inseparably connected. Hence mental culture cannot be successfully carried on without physical culture. Both mind and body must have recreation more than the ordinary recesses and holidays afford, and as every teacher knows there are certain hours and days when the fiend disorder seems to reign in the school room. He cannot assign any reason, but the very atmosphere is pregnant with anarchy and confusion. And what can the teacher do to overcome the evil? He may tighten his discipline, but that will not bind the volatile essence of confusion. He may ply the usual energies of his administration, but resistance is abnormal. He may flog, but every blow uncovers the needlepoints of fresh stings. He may protest and supplicate, scold and argue, inveigh and insist; the demon is not exorcised, nor even hit, but is only distributed through fifty fretty and fidgety forms. He will encounter the mischief successfully only when he encounters it indirectly. Here applies the proposed remedy, mental and physical recreation. Let an unexpected change divert the attention of the pupils; let some general theme be introduced in a familiar lecture or exciting narrative; or, if nothing better is at hand, let all say the multiplication table or sing "Old Hundred," and the work is accomplished. "The room is ventilated of its restless contagion, and the furies are fled." Now add to this mental the physical recreation of school gymnastics, and the remedy is still more sure.

VALUE OF SCHOOL GYMNASTICS.

Gymnastics are not only useful and important as a means of physical development, but also of school government. The exercise serves as a safety valve to let off the excess of animal spirits, which frequently brings the pupil in collision with his master. It relieves the school of that morbid insensibility and careless indifference which so often result from the monotony and burdened atmosphere of the school room. It sets up a standard of self government and forms the habit of subjection to authority, and as it is a regulator of the physical system, it becomes such to the conduct under law. The gymnastic resembles the military drill, and has the same general influence upon the pupil that the military has upon the soldier, to produce system, good order, and obedience. Gymnastics also create self reliance and available power. This is more important in life than brilliant talents or great learning. It is not the mere possession of physical power that gives ability, but the control of that power which this drill secures. And gymnastics preserve and restore health.

It can be shown that the sanitary condition of schools and colleges has improved from 33 to 50 per cent. since the introduction of this systematic physical culture. Would we secure to future generations the realization of the old motto, "*Mens sana in corpore sano*," we must restore to our schools of every grade systematic physical training. True gymnastics are calculated to correct awkwardness of manner and to cultivate gracefulness of bearing. They give agility, strength, and ready control of the muscles, and thus tend to produce a natural and dignified carriage of the body and easy and graceful movements of the limbs.

Again, the gymnastic drill awakens buoyancy of spirits and personal sympathy. Concert of action brings the class into personal contact, in a variety of ways, and tends not only to create mutual good will, but the greatest interest and enthusiasm. This promotes improved circulation, digestion, and respiration, and induces a feeling of cheerfulness and hopefulness that dispels dependency and every evil spirit.

The gymnastic garb must leave the limbs free from restraint and the muscles and vital organs free from pressure. Hence, under this treatment, the beautiful form is

left as God made it, to be developed according to His own plan. We mark this as another advantage of gymnastics: to correct and control the ruinous habit of fashionable female dress. Indeed, every department of education is carried on through a system of practical gymnastics. We have mental gymnastics, moral gymnastics, and physical gymnastics, which include vocal gymnastics.

EXERCISE A LAW OF EDUCATION.

The law of development is through exercise. A "sound mind" is one whose faculties and powers have been called into harmonious action by patient and long continued study; a "sound body" has been developed by the exercise of every one of its four hundred and forty-six muscles; and neither can be in sound condition while the other is diseased or uncultivated.

THE LAW OF KINDNESS.

6. *Kindness is another powerful agency in the management of a school.*—By this, as exemplified in the life of the true teacher, I mean his uniform good will, earnest sympathy, and hearty generosity, habitually exercised toward his pupils. There is no force on earth so potent as love. When it has possession of the human heart it is all pervading and overpowering, and especially if brought to bear upon sympathetic childhood and youth.

THE TEACHER MUST RULE BY KINDNESS.

That teacher alone who loves his pupils has power to gain their love and confidence, which should be his chief reliance in school management. An affectionate pupil will confide in our judgment, respect our authority, and fear our displeasure. If we show him by our personal attention and kindness that we are his true friends and that all our efforts are designed to secure his best good, and make him believe it, we hold him as by the power of enchantment; we have no further need of physical force as applied to him. He is held under another and higher law, which induces him to gratify our wishes and seek the best good of our school. We, as teachers, occupy for the time being the place of the parent, and we should, as far as possible, cherish the affection and manifest the interest and zeal of the true mother, who spends her life in loving and toiling for her children. But this kindness, which is an essential element in every true system of government, is not, and cannot be, a substitute for authority or an obstacle to severity, when the good of the individual or the school demands it. The teacher must cherish an abiding love for his pupils, and that love is never more truly exercised than in inflicting necessary pain in the management of public affairs. Of the teacher's heart Shakspeare could not say, "It is too full of the milk of human kindness," if only he has enough of authority, firmness, and executive will. Without these, even love, as an element of school discipline, is sometimes powerless.

TEACHERS MUST HAVE POWER TO PUNISH.

7. *This brings me to consider the discipline of punishment.*—I have spoken of the power of system, law, and kindness, in their silent but effective influence upon individuals and the school. I have spoken of the means and methods of preventing evil. I come now to the penalties to be inflicted when crime has been committed. Wholesome laws will be violated under every system of school management. The question to be settled is, should the government of the school be positive and efficient? If so, the master must have the right, disposition, and power to inflict punishment when necessary. If this right is denied or this power withheld, the government of the school is at the mercy of circumstances; it cannot be sustained. In the dispensation of penalties, professional knowledge and wise discrimination are requisite. The circumstances connected with the offence must be carefully studied and a distinction always made between wilful and unintentional wrong. The isolated act of transgression does not indicate the degree of guilt incurred nor the kind of punishment to be inflicted; the

presence or absence of palliating circumstances, the motives which generated the act, the present views and feeling of the offending pupil, must *all* be taken into the account. The master should never, therefore, threaten a specific punishment for anticipated offences. No two cases of transgression will be exactly alike, and hence the kind and degree of punishment should be varied as the case demands. But the good disciplinarian seldom resorts to severe punishment in the government of his school; yet he never relinquishes his right to punish as circumstances require. Nor does he regard severity, when necessary, as an evil to be deplored. It is indeed a sore evil that mortification has so endangered the life of the patient that the limb must be amputated; but it is not an evil that you have at hand surgical skill and suitable instruments to perform an operation. It is indeed a misfortune that any child or pupil has become so demoralized and reckless as to incur the penalties of the law; but Solomon's rod, which has restored him to obedience and duty, is a blessing whose influence will be felt and acknowledged by the offender as long as he lives.

PUNISHMENT NOT THE "LAST RESORT."

Nor is severe punishment to be regarded as the "last resort." When it may be inflicted at all, it is the first resort, and the true remedy. Allow me to illustrate: A skilful physician is called to prescribe for a patient sick almost unto death. He sees, at a glance, that only one remedy will cure, and that must be administered promptly. Now the question is, shall that powerful medicine be given at once or as "the last resort," after every mild remedy has failed? If the doctor resorts to herb drinks and tonics in the case supposed, he is a quack, and his patient will die while the tender hearted simpleton is experimenting upon him. But the "*calomel*" is given and the patient recovers. So with punishment. It may be mild or severe; each kind is appropriate as a remedy for specific evils. But if the case is one that requires great severity, that kind of punishment must be inflicted promptly and faithfully. "Spare the rod and spoil the child," under such circumstances. Much has been said and written upon corporal punishment and moral suasion, but their appropriate use in school discipline is seldom understood, as it seems to me.

MORAL SUASION NOT THE REMEDY FOR REBELLION.

Moral suasion is not the remedy for bold and defiant violations of law, if we mean by that term the persuading of the culprit to return to obedience or the purchase of his allegiance by a promised reward. Rebellion should be met by stunning, crushing blows, such as will vindicate and reestablish authority and deter others from committing the same crime. Mildness is cruelty under such circumstances. All such cases demand instant and determined action. The time for conciliation is after the rebels are subjugated and the authority of the government is restored. But moral influence and kindness should attend every act of severity; never let the sun go down upon the wrath of a chastised pupil. See him alone, bring to bear upon him every moral power, treat him now with kindness and confidence, and thus restore him to duty and favor. Without the rod, moral suasion might have been powerless, or, if successful, what was gained by persuasion was lost to authority. It must never be doubtful that the master has supreme control over his little kingdom. If his authority is trifled with it must be restored without delay, and any punishment is judicious that is necessary to this end. The system of government here recommended does not offer an angry word or blow for every offence, real or fancied. The best masters who have adopted it punish the least. And when severe punishment becomes necessary, the pupil is made to believe that a sense of duty, and not passion, nerves the arm to strike the blow. He is made to understand that it is the master's duty to command and the pupil's duty to obey. Practically, the system of government based upon authority has alone been successful; every system that has abandoned the right or lost the power to punish has proved a failure.

In punishing for falsehood, pilfering, profanity, and the like, it should be borne in mind that, while "the rod and reproof give wisdom," yet the moral treatment of such offences is *always* appropriate, either with or without severity, as the case may be. If the knowledge of an offence is confined to the offender and the teacher, it should be treated privately, for the good of the individual. But public crime must meet public punishment, that all similar cases may be reached and the school benefited. Let the folly, wickedness, and consequences of the crime be fully exposed and brought home to the conscience. And in the settlement of the question never fail to leave the way open for repentance and restitution. One example, to illustrate:

ILLUSTRATION.

A gold dollar had disappeared from the teacher's table while she stepped to a neighboring room. Two school girls, who were the only persons present, had disappeared. It was Saturday, and in the evening the young ladies were assembled in the public parlor for family worship. The principal, who was conducting the exercises, commenced describing the effects and consequences of having, by accident, deposited a gold dollar upon the human lungs. It would corrode and poison, produce inflammation, disease, and death, if it could not be removed. He then transferred the gold dollar from the lungs to the conscience, and portrayed the consequent guilt, remorse, anguish, and moral death resulting from such a crime, if not repented of. He presumed the young lady would gladly restore the money and save herself from the disgrace and suffering which must follow. He told her where she could leave the dollar, and that the fact of restoring it would be proof of her penitence and would save her from exposure. In her desperation, she had already thrown the gold dollar down the register; but she did borrow the amount of her teacher, confidentially, to be paid from her spending money, and deposited it as suggested. And so the whole matter was settled and the most satisfactory results followed. The parents of the young lady never knew that anything of the kind had occurred. This case indicates the method I would adopt in dealing with school vices.

STUDY A DISCIPLINE.

8. *The discipline of study may next be considered.*—Study is mental gymnastics, systematic thinking, and the end in view is development and culture. One great object of the school is to induce and direct this mental exercise. Study is of the first importance, and hence must have the first attention of every practical teacher. In the organization, classification, management, and government of his school his chief aim is to secure systematic thinking. To this end he arranges certain hours of the day to be especially devoted to study. No unnecessary interruptions are allowed. In the selection of studies and the arrangement of classes he has regard to the capacity and standing of each pupil, so that he may work easily and successfully. He requires a regular hour to be devoted to each study and recitation, that order and system may everywhere prevail. He enforces rigid discipline, that the school room may be quiet, and, most important of all, he inspires his pupils with an enthusiasm that creates a love for the duties of the school and earnestness in study. He teaches his pupils how to study. He shows them that it is not the number of hours spent with books in hand, but close application, that secures thorough discipline and good lessons, and that self application is the only condition of sound learning. Hence he will not allow them to seek assistance from each other nor often from the teacher. And the wise teacher instructs his pupils to study thoughts and subjects, instead of words and books. Thus correct habits of study are formed and the foundation is laid for successful training at every future stage of education.

Study is the exercise of acquiring and the only means of mental culture; mind is developed through its agency and power of self control and self direction gained.

RECITATIONS AND DISCIPLINE.

9. *The discipline of recitation comes next in order.*—Recitation is the exercise of expression, and, like study, belongs wholly to the scholar. Study and recitation are the principal means of gaining mental power and practical ability. Both are indispensable to the end in view, if not equally important. Recitation has some incidental advantages of its own.

RECITATION INDISPENSABLE.

If properly conducted, it induces study. Few lessons would be learned in any school if no recitations were required or if it was understood beforehand that the hour of recitation was to be occupied by the teacher in lecturing or asking questions. Again, recitation gives distinctness and vividness to acquired knowledge. No lesson is fully learned until it is recited. It follows, therefore, that every pupil must recite at every recitation or suffer a loss.

SMALL CLASSES DESIRABLE.

Classes should never be so large as not to allow this thorough personal drill. That teacher who claims ability to educate classes numbering from fifty to seventy-five is either a novice or a quack. Such teaching is a fruitful source of indolence and superficial scholarship. Recitation in concert is equally objectionable. This may occasionally be profitable for recreation and improvement, when the whole school can engage in it; but class recitation in concert, as a habit, creates disorder, prevents quiet study, destroys self reliance, affords a hiding place for the idle and reckless, and removes the strongest motive for self application.

POWERS DEVELOPED BY RECITATION.

But the relation of recitation to study is not its most important use. All that is practical in education, in every department of life, is developed by recitation. The power of action, no less than the power of expression, is gained by this alone. The child learns to walk and talk by walking and talking. The mechanic learns to use his tools by using them. He could never gain the power to build a house, construct an engine, or manufacture a watch by reading or hearing lectures upon the subject. In each department he learns his trade by reciting. The skilled musician has gained his wonderful ability to use the voice and the instrument by years of patient recitation. The statesman and orator whose eloquence moves the senate and attracts the attention of admiring nations has gained his power to influence by the practice of oratory. And so the art of easy, graceful, and intelligent conversation and elegant composition is acquired by conversing and writing. These examples drawn from the theatre of busy life serve to illustrate the relative importance of school recitation and indicate the manner in which it should be conducted. I come, then, to consider—

10. *The discipline of instruction.*—I will here distinguish between instruction and recitation. The former is the business of the teacher; the latter belongs exclusively to the scholar. The object of the one is to impart information, induce study, and awaken thought; the object of the other is to express the thoughts which the scholar has acquired by study, observation, and reflection. School instruction serves, as has been suggested, to render acquired knowledge more definite and conceptions more vivid, and cultivates the power and habit of expression. And all these exercises—study, recitation, and instruction—have one common end to accomplish, viz, discipline.

In speaking further of the discipline of instruction, I should consider the different methods which have been adopted.

NATURAL METHOD OF TEACHING.

Primary instruction will first occupy our attention. The untrammelled child in the nursery has a happy way of acquiring knowledge and discipline. His home, the little

world in which he lives, is now his school. The domestic animals, his playmates, and his toys occupy his attention and awaken his interest. His mind is fully alive to every object his eyes behold. Observe, now, the natural process of learning, and from this learn the natural method of instruction. First the object, then its name, and finally its nature and uses. The child never deals in abstractions, nor troubles himself about the unnecessary elements of which that object is composed. He cares nothing for the etymology of the name, nor the sounds which, combined, give it expression. He knows it at sight, and can speak it without hesitation. Its utility he now discovers, and values it only as he can turn it to some practical account.

Now transfer this child to the school room, and common sense teaches that the object and word method of instruction must be continued in distinction from the alphabetic. The word method begins with the words found in the book, and the child learns to read correctly and fluently a hundred pages in "Webb's First Reader" before he is expected to know the name or sound of a single letter. But something more is here contemplated than learning words—first, the picture and then the object, if it is at hand, and then the name, with its meaning and use. The thing before the sign is the rule in teaching by this method, even with familiar objects. Particles and connectives, and other words not represented by objects, should be learned with this meaning, so as to be recognized at sight. Words descriptive of color and actions should be illustrated by examples. When spelling comes to be taught with reading, and the alphabet to be learned, it should be by the analysis of the words found in the reading lesson, instead of the old method of learning the A B C's and spelling columns of unmeaning words from the spelling book. By this method the child knows the word at sight. As he knows the object which it represents, he can speak it without hesitation or drawling; he knows the meaning of every word in the lesson, and is able to read as he would talk; he avoids the use and vexation of unmeaning symbols, which serve only to create disgust and contempt for both books and school. And as the child's education advances the same method of instruction should be carried into all departments of study. Defining and explaining should, as far as possible, be done by the use of objects, and should be extensively practised in spelling and reading and in every other department of the school.

METHOD OF TEACHING ENGLISH.

The study of our own language by the use of the English dictionary should be encouraged and required of all. In teaching spelling, punctuation, and the use of capitals, the attention of the scholar should be directed to the printed page. He will there see correct forms and usage, and thus acquire the habit of criticism and correctness in practice. Why these capitals are so used should be explained, and what variations of the voice the punctuation marks indicate should be illustrated by the teacher's voice.

VALUE OF WRITTEN COMPOSITIONS.

And while dealing with the thoughts of others, the scholar should be taught to express his own on slate or paper as soon as he is able to write. This department of composition, though the most neglected, is the most important of all. Hence, the teacher should give it special and frequent attention, at every stage of instruction, that his pupils may learn to express themselves in an easy and graceful manner.

DANGER OF TEACHING BY QUESTIONS.

The three methods of instruction now claim our attention. The more common is by *questioning*. Many teachers know of no other way, and some have so little knowledge of the subjects to be taught that they demand to have questions prepared for themselves as well as for their pupils. And bookmakers, quick to observe the condition of the market, often line the margin of their books with leading questions to be used in study and recitation. This is all wrong and one of the indications of the superfi-

ciality of the age. The tendency in all departments of learning is to skim the surface and to remove the necessity of thoroughness. Questioning is not the best method of instruction, nor can it be safely adopted as the only method. Yet the method has its place, and may be useful, first, to direct the attention of the pupil to special topics or thoughts which have been overlooked or omitted in the recitation; secondly, it is useful in conducting reviews and examinations.

HOW TO PUT QUESTIONS.

But the teacher must exercise special care as to the manner of putting questions. 1st. He should never ask leading questions, such as will suggest to the scholar the answer. 2d. He should always put the question to the class before he calls up the individual, so as to secure the attention of all. And while he should have special regard to the matter, form, and mode of his question, he should also see that the answer is confined to the question, is concise and logical, and given in correct language. This habit of criticism will secure accuracy of thought and expression and impart positive knowledge. It is opposed to that loose and vague method of study and expression which results in mental anarchy and confusion.

VALUE OF WRITTEN EXAMINATIONS.

Written answers have the advantage over verbal that they bring the scholar under rigid examination in other departments of primary instruction. A written answer exposes his penmanship, orthography, use of capitals, punctuation, and forms of expression. Hence, this method of examination should be practised as often as time and circumstances will allow.

THE USE OF LECTURES.

Lecturing is another method of instruction which has its uses and abuses. A lecture by the teacher should never be substituted for a recitation by the class. These exercises are separate and distinct in their aims and results. Many teachers suppose that the measure of their ability as instructors is the power they have to explain and talk before the class, and hence they spend the most of the hour assigned to recitation in the display of their own gift of speech. But in the recitation room the good teacher has but little to say. His ability is tested by his silence more than by his loquacity; by his power to rouse and direct the activity of his pupils more than by his own actions. But there are times and places for familiar and studied lectures, and the object to be gained is twofold, viz, to impart instruction and to give variety and fill up the vacant hour. And they should be employed to accomplish another object: to discipline the pupil in the habit of listening. He may acquire correct habits of study and accuracy and fluency in recitation, and yet be a listless hearer. He must therefore be educated to listen, and this can be done in no way so well as by requiring the class to hear the lecture and to repeat in recitation in their own language what was communicated or explained.

THE PURPOSE OF ALL EDUCATION.

But, after all, independent topical recitation is the true method of instruction, whenever the subject will admit of it. This will appear when we consider that the end of study, recitation, and instruction is not the attainment of knowledge, but discipline. The results of education are illustrated, not by the golden cup filled to the brim, but by the swelling bud developed into blossoms and ripe fruit through the genial influence of light, heat, and moisture. Education, then, is not the storing of knowledge, but the development of power; and the law of development is through exercise.

Study and recitation are the principal agencies to be employed in the process of training. Instruction is useful and important only so far as it secures, directs, and controls earnest study and careful recitation. Any system of instruction, therefore, which weakens the motive or removes the necessity of laborious thinking and inde-

pendent expression is false in theory and ruinous in practice. Hence I condemn the "drawing out" and "pouring in" system, if either is the only or principal one adopted.

HOW TO RECITE.

As recitation is wholly the work of the scholar, he should recite independently, and, as intimated, topically, when the subject will admit of it. Captions, definitions, tables, and fixed rules should be accurately recited in the words of the author, but every other kind of lesson should be expressed in the pupil's own language. In this way the mind becomes a depository of thoughts, instead of mere words and signs, and power is gained to express them accurately and logically. And the recitation should be made standing, that the pupil may be brought out prominently before the class and acquire the habit of thinking and speaking in that exposed position. This will give him confidence and self control. But some thoughts cannot be expressed in words; these must be drawn out in figures, diagrams, and maps. Again, the skilful teacher will adapt his instruction to the capacity, attainments, and dispositions of his scholars. Some are bright and some are stupid; some are timid and some are bold; and some have enjoyed better advantages than others at home and abroad. Now, each of these classes require special training; and that teacher alone is wise and can hope to be eminently successful who is able to adapt his treatment and instruction to the wants of all. Every mind must be tasked to be educated; and hence each scholar should have just such lessons assigned him as he is able, by the greatest exertion, completely to master. The dull scholar should have few lessons at the same time; the easy scholar more, each according to his ability to learn. Discipline is the end in view, and nothing can supply the place of it. Mere scholarship does not make the man; genius, even, needs culture as well as stupidity.

RECITATION MARKS NOT THE FINAL TEST OF ABILITY.

The marking of class recitations does not determine the ability of the man in future life. The brilliant scholar, who has spent his time in comparative idleness and looked with contempt upon the laborious student who stumbles in recitation, has often been compelled to step aside and see his less scholarly but more industrious companion come up to occupy positions which he could not fill. College marks gave the boasting genius a scholarship and made him the valedictorian; but the world has reversed the decision and awarded the merit and the honor to him who has forced his way to distinction and usefulness by toil and sweat and tears. The college will never abandon its own marking as a standard of honorable position nor fail to withhold merited honors from those who were not found among its favored few in the days of Greek roots and Latin terminations. Still, success in life is the only standard of greatness and the only test of honorable distinction. The greatest man in any sphere of action is he who has accomplished the most. Good scholarship is desirable, but it sometimes happens that the brilliant scholar is sadly deficient in those manly qualities which are the only guarantee of success in life: common sense, untiring industry, energy, and perseverance. No man has ever risen to distinction by uncultivated genius alone, but, if at all, through labor. Culture gives ability; and hence each mind must be tasked, that it may be cultivated. If the scholar has ability to master only one or two studies, while his classmate can accomplish twice as much in the same time, then the latter must have two or four studies, as the case may be. Compel each scholar to do all he is able to do, then each will be equally benefited by the discipline of school life. Treat the dull scholar with stimulants, the timid with encouragement, the self sufficient with hard questions and severity; task the apt scholar and give him but little assistance.

REWARDS TO THOSE WHO EARN THEM.

The tree of knowledge that grows in the educational garden is also a tree of discipline. Its stately and well-formed trunk, its symmetrical limbs, its flowing leaves, its

beautiful flowers, and its rich fruit are charming to the eye and to the taste and form a refreshing shade for the many pilgrims of science. Gushing springs flow forth from its roots to quench their thirst, singing birds pour forth their richest music from its branches; but the ease and pleasure here to be enjoyed are for those only who come to toil and whose weariness is the fruit of the tree. The fruit of that tree is knowledge, but the labor of plucking that fruit gives discipline. It is presumed that the easy scholar can pluck the fruit unaided. If so, he needs no instruction — would be injured by having it. He may need direction and encouragement, but no help. Some can reach only the lower branches, and others, unaided, can pluck no fruit at all. Hence some need more help than others, but none should be helped while they have power to help themselves. This is the golden rule in teaching. The timid and the dull need encouragement and inspiration more than help. Give them these, and they will climb higher and still higher, but never help them while they have the power of climbing.

GENERAL SUGGESTIONS.

Some general suggestions upon the subject of instruction may here be made. Teach subjects, and not books; teach classes, and through the class drill the individual members; allow no interruptions while classes are reciting; aim to make the class recitation attractive and interesting; and, above all, inspire the pupils with earnestness and enthusiasm in the business of the school. To wake up mind is the instructor's first and most important work; and if successful in this, he is at once master of the situation; and to secure accuracy and thoroughness, frequent reviews should be required of all. Finally, let every department of instruction be made practical, so that the scholar will be qualified to enter at once upon the duties of practical life.

POLITENESS A LOST ART.

11. *The discipline of good manners.*—This subject, which our fathers seem to have regarded of great importance, has been fearfully neglected in these latter days. As a consequence, our children in the family and school practise only rudeness and insubordination. To such an extent has this department of education been neglected of late in our country that we have received merited reproach from other nations. We may here draw the contrast between the old and new civilization. The old was distinguished by a proper regard for all the courtesies of refined life; the new can boast of nothing but incivility. The rapid decline of good manners in our times appears most evident when we compare the practice of our fathers with their degenerate grandchildren. The old civilization recognized the "bow" and "courtesy" as tokens of respect. They have ever been so regarded, though sometimes used as mere signs of recognition. In the rural districts, the bow and courtesy have been regarded as evidence of good breeding and as the expression of proper reverence cherished by the young for their superiors. Alas! that the sign and the thing signified have nearly passed away! The expressions of genuine politeness and deference which were met in every cultivated family and good school in the days of the distinguished Dr. Edwards have given place to habits of coarseness and incivility, and the *sir* and *madam*, which were always used by the children in the genteel family as a title of respect for parents, have, with the bow and courtesy, passed away. And where now do we find that gentleness, politeness, and ready obedience which characterized the children in their relations to those whom God had placed over them in their own homes? In those days, under the direction of parental authority, children kept their places, regarded their instructors, and observed all the little acts of civility which throw a charm around the family circle. Not so now. Rudeness characterizes all their movements at home and in school. With their heads covered, they lounge about the house, intrude themselves into company, interrupt conversation, dispute with superiors, and make themselves disagreeable in every way. At school the bound and scream which follow the word of dismissal remind one of incipient savages; and in

the streets the teacher may not expect from schoolboys, as a rule, respectful attention and courteous behavior, but rather insulting words, and even snowballs or mudballs, if he chance to come in their way.

MANNERS AND MORALS INSEPARABLE.

Now, the manners of a people surely indicate their morals; but human society itself exists only so long as the moral sense of the community is preserved. Of manners and morals it may, then, be affirmed that the one is but the complement of the other, and that they cannot be separated. Like the twin Siamese, their vital organs are connected; their life blood flows from the same heart and through the same channels. Sever the artery that connects them, and you destroy the life of both. Morals divorced from manners become cold and repulsive; but when united they are attractive and pleasing. And how are we to gain what we have lost in this important department of education? Lack of home culture and discipline is the principal cause of the evil we contemplate. Children left to their own ways grow up in the entire disregard of common courtesy. They neglect to show proper respect to parents and teachers, to seniors in age, and to superiors in station, wisdom, and virtue. And if the ordinary civilities of refined life are not regarded in the family and school and in the social intercourse of home society, how can we expect that politeness will be extended to the stranger met in the marts of business or in the walks of pleasure? In the present condition of society, much responsibility in regard to the needed reform rests upon the teachers of our public schools. And the only way to accomplish the desired object is by earnest self culture and faithful instruction on the part of the teachers of the nation and those who are candidates for that responsible office.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

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EDUCATION AND CRIME.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 12, 1881.

The opinion that universal elementary education by the state favors crime having been found untenable, it has now become a favorite charge that the higher grades of education are no safeguards against tendencies to crime. There is a constant demand for information on this subject, as the question arises in different parts of the country, and to meet this the following able report of J. P. Wickersham, LL. D., for fifteen years the State superintendent of public instruction of Pennsylvania, and chairman of the committee appointed by the National Educational Association to investigate the subject, is now published by this Bureau.

JOHN EATON,
Commissioner.

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EDUCATION AND CRIME.

The committee which I have the honor to represent was raised at the Philadelphia meeting of the association in 1879. It grew out of a discussion on a paper by Hon. J. W. Dickinson, of Massachusetts, on the "high school question." As against high schools, the assertion was boldly made that a very large proportion—60 per cent., I think—of the convicts then confined in the prisons of Philadelphia were high school graduates. This assertion was as boldly denied, and a committee was at once appointed to ascertain the truth by an immediate inspection of the institutions indicated, and report before the association adjourned. To perform the allotted task in the appointed time was found to be impracticable, and under a more formal resolution of wider range the committee was authorized to inquire not only into the special question then mooted, but to collect general statistics showing the relations of education and crime and report at the next meeting. The chairman of the committee was Dr. J. A. Paxon, of Philadelphia, the gentleman who had made the statement that brought about the issue; but, for some unexplained reason, he neglected to call the committee together or to make a report on his own responsibility. The association was therefore disappointed at Chautauqua in not receiving the expected report, and, in the hope of securing an investigation of the question, changed the order of the names on the committee, and, against his protest, placed the writer at the head of the list. These words are sufficient to explain how the matter first came before the association and at the same time define the line of investigation which it was intended the committee should follow.

First, then, we must report specially the facts as regards the number of high school graduates in the Philadelphia prisons; and, secondly, discover, if we can, in a general way, how education affects crime.

The statistics of the Eastern Penitentiary of Pennsylvania are probably compiled with more care and presented in more detail than those of any other similar institution in the country. During the year the association met in Philadelphia (1879) there were received at this penitentiary 487 convicts. Of these, 82 had never attended schools of any kind; 5 are reported to have attended college for an average length of time of 6 years, one of them having attended 10 and another 7 years; 7 are said to have attended a public high school for an average length of time a little over 2 years; 12 had been at private schools who had never attended public schools, the average time spent in school being $7\frac{1}{2}$ years; 390 had attended public schools, 169 of them advancing to the grammar grade, the average age at leaving school being 14, and the average time they remained in school is set down at about 5 years. These are the exact official figures; and instead of there being a large percentage of high school graduates in the penitentiary, it appears that there were only 7 of all the convicts received in 1879 that had ever attended a high school, and not one of these had attended long enough to graduate. True, 5 are said to have attended colleges, but they must have been colleges of a peculiar kind to permit attendance for 5, 7, or 10 years, as stated in these cases.

The statistics of the same penitentiary for 1880 repeat those of 1879: 13 convicts out of the 463 received are said to have attended American high schools, but of these 8 attended only 1 year and but a single one attended as long as 3 years. There is

no reason to think any one of them graduated. Five are said to have attended college; but 3 of them attended too short a time to graduate, and the other 2, who are set down as having attended 7 years each, both left school at the age of 16.

We have been unable to obtain reliable statistics of the kind wanted from Moyamensing, the Philadelphia city prison; but instead we present, from the combined statement of the State board of public charities, a most important fact bearing on the case, viz, statistics showing the educational relations of all the convicts sentenced to the jails and workhouses of the State for the year 1879, including Moyamensing prison. Of the 2,307 persons convicted and sentenced to these institutions during the year, only 13 are said to have possessed a superior education, and it is not at all likely that there was a graduate of either a high school or college among them.

To add further weight to this evidence, it may be stated that out of 571 convicts received at the Western Penitentiary of Pennsylvania during the years 1879 and 1880, only 3 are set down by the prison authorities as possessing what they call a superior education.

These statements dispose of the question in the hands of the committee so far as it relates to the number of high school graduates in Philadelphia and Pennsylvania prisons. It may be added, however, that the same showing is made by all the prisons in the country. The number of liberally educated native born Americans, whether graduates of high schools or colleges, found in our jails and penitentiaries, is exceedingly small; not more, we think, than 1 in 500 of the whole number. Such a fact must more than satisfy the most ardent friends of higher education.

But the hardest task imposed upon the committee remains to be performed, viz, to find out, if we can, in a general way, the effect of education upon crime. The question is, taking education as we have it in this country as a whole, higher and elementary, public and private, does it tend to diminish crime; and, if so, to what extent?

We are free to acknowledge at the threshold of our inquiry that there are causes of crime other than ignorance, but it is no part of our present purpose to search them out. We shall endeavor to confine ourselves strictly to the question submitted to us, in the hope that in this narrower field we may be able to discover the truth, and that the truth when discovered will justify us in holding that the education our people are receiving, imperfect as it is, does something to prevent crime. We would be rejoiced if, as the result of our inquiries, we could say to the educators of the country, "In proportion as you improve your schools and your teaching, crime will decrease."

First, then, let us see what light the statistics of our prisons throw upon the question before us. The population of our States and communities is made up of two classes: those who are wholly illiterate and those who can read and write and possess various degrees of knowledge above these acquirements. The census returns draw a sharp line between these two classes, and we may know the number of each in any county, city, or State. The convicts in most of our prisons are classified in a similar way, into illiterates and those who possess more or less education. Now, if among the convicts in our prisons there is a larger proportion of illiterates than there is in the States or communities from which they come, the conclusion would seem to be inevitable that education has an influence in preventing crime. In applying such a test, we are well aware that education is at a disadvantage, because large numbers of the convicts in our prisons who are set down in the reports as being able to read and write can do so very imperfectly, and in reality are about as ignorant as those classed as wholly illiterate. Still, the statistics shall be presented as we have them.

The two Pennsylvania penitentiaries in 1879 received 799 convicts, and of these 114 were wholly illiterate; in 1880 they received 722 convicts, of whom 151 were wholly illiterate; in two years, 1,521 convicts, with 265 illiterates. Thus there is committed by illiterates more than one-sixth of all the crime in Pennsylvania for which punishment is inflicted by incarceration in penitentiaries; while the persons of this class of an age to be sent to the penitentiary for crime do not constitute one-thirtieth of the population. It appears, therefore, that one-sixth of the crime in the State is com-

mitted by the illiterate one-thirtieth part of the population. But this is not all. In addition to the illiterates there were received at the two penitentiaries, in 1879 and 1880, 272 convicts who could barely read and write and had no education beyond that point. If we class these among the uneducated, as we clearly have a right to do, the number of illiterates in the penitentiaries would be swelled to 537, and the astounding fact would appear that more than one-third of all the penitentiary offences in the State are committed by this small but unfortunate class of our people.

Such is the story told by the penitentiaries of Pennsylvania; its purport is scarcely modified in any degree if we combine with the statistics of the penitentiaries those of the county jails, workhouses, and houses of correction. In 1878, of 4,023 admissions into these institutions, 1,209 could not write, and in 1879 612 could not write out of 2,307 admissions. A majority of those who could read and write with more or less facility were otherwise grossly ignorant.

So far we have taken our statistics from Pennsylvania, because they were most easily obtained. Those of other States and other countries show like results and lead to like conclusions. We have before us the reports of the penitentiaries and prisons of some twenty States. As a whole, they tell substantially the same story of the relations of education to crime as the reports of the penitentiaries and prisons of Pennsylvania. With this testimony before us, we reach the following conclusions:

(1) That about one-sixth of all the crime in the country is committed by persons wholly illiterate.

(2) That about one-third of it is committed by persons practically illiterate.

(3) That the proportion of criminals among the illiterate is about ten times as great as among those who have been instructed in the elements of a common school education or beyond.

These conclusions correspond in the main with those arrived at by other inquirers. S. H. White, an ex-president of this body, in his valuable essay on "Education and crime," makes the following statements:

Speaking of New York City, he says that "among the illiterate there is 1 crime to a fraction over 3 persons, while among those not illiterate there is 1 crime to about 27 persons; or, the chances for crime among those who cannot read and write are 9 times as great as among the rest of the people." Of the State of New York he says: "Seven per cent. of the people commit 31 per cent. of the crimes. A person not able to read and write is 6 times as apt to commit crime as one who can read and write." In Massachusetts, he states that, in 1871, "among the ignorant population 1 in 20 committed crime, while among those who had a greater or less degree of education there was 1 crime to about 126 persons." In Illinois, Mr. White found 1 out of every 137 of the illiterate in prison, while of those with more or less education there was only 1 to 566.

Dr. Edward D. Mansfield, in a report to the Bureau of Education in 1872, on "The relation between education and crime," with the criminal statistics before him from nearly all the States, reaches the following conclusions:

(1) That one-third of all criminals are totally uneducated, and that four-fifths are practically uneducated.

(2) That the proportion of criminals from the illiterate classes is at least tenfold as great as the proportion from those having some education.

Rev. Charles L. Brace, at the head of the Children's Aid Society of New York, states that nearly one-third of the crime in New York is committed by the illiterate six-hundredth part of the population. He adds: "Very great criminality is, of course, possible with high education; but in the immense majority of cases a very small degree of mental training or intellectual tastes is a preventive of idleness and consequent crime."

The late Dr. E. C. Wines, one of the highest authorities on the subject under consideration in this or any other country, in his great work on the "State of prisons," presented his conclusions in the following words: "Taking the entire mass of the inmates of all classes of prisons in the Northern and Western States, the proportion of these wholly

illiterate to those that have received a moderate degree of education, often very moderate indeed, may be stated with substantial correctness at about one-third. In the Southern States the proportions are just about reversed, being two-thirds illiterate to one-third partially educated. The number of prisoners who have received a superior education in either section is small indeed."

The criminal statistics of foreign countries add weight to these statements. Of 147,073 persons committed to prison in 1872 in the British Islands, 49,345 could not read or write, 92,126 could read or read and write imperfectly, leaving only 4,892 who could read and write well and 223 who had received a superior education. The number of women and girls arrested and punished for crime in London in 1877 was 20,018. Of this number, 4,206, or 21 per cent., could neither read nor write; 13,665, or 68 per cent., could read only; 2,000, or 10 per cent., could read and write tolerably well; 141, or 7 per cent., could read and write well, and 6 had received a higher education. A late number of the *Journal des bibliothèques populaires*, Paris, contains a table of criminal statistics embracing 63 of the 87 departments of France. From this statement it appears that, of 3,354 persons arrested for crime, 1,480 were unable to read or write, 1,362 could read and write imperfectly, and only 512 could read and write well. And Dr. Wines is authority for stating that in Belgium one-half of the prison population is wholly illiterate on commitment, and in Holland one-third.

Some notice must be taken here of a class of writers who have not found in education, as we think we have, a cause tending to diminish crime. They are willing to admit that education may change the direction of crime, perhaps remove some of its most revolting features, but cannot lessen the actual amount. Certain of these writers reach this conclusion by contrasting the criminal statistics of countries differing in the degree in which education is diffused among the masses of the people. Countries in which education is general, they allege, show as great an amount of crime as countries in which a much larger proportion of the people are illiterate. Prussia, it is said, where elementary education is almost universal, has proportionally many more convicts in her prisons than France, only about one-half of whose adult population can read and write. In view of statistics of this kind which he presents, Alison, in his *History of Europe*, pronounces the doctrine that education in a large sense tends to prevent crime a fallacy. He is followed by others less noted. Herbert Spencer, in his *Social Statics*, and Buckle, in his *History of Civilization*, arrive at the same conclusion from somewhat different premises. They find, or think they do, that the criminal statistics in a country for a series of years show that the amount of crime is a constant quantity, proportionate to the number of people and apparently unaffected by educational or moral influences. A nation may grow, these cold philosophers maintain, may rise in the scale of civilization, but the amount of crime it commits will remain a fixed quantity, governed by unalterable law, and can be predicted with the same certainty as the death rate. Says Buckle, "It is decisively proved that the amount of crime committed in a country is, year after year, reproduced with the most startling uniformity."

In answer to the first phase of this argument, it may be stated that it does not follow, because statistics seem to prove that more persons proportionally have been found guilty of crime in some well educated country than in one more illiterate, that education does not tend to prevent crime. The statistics may have been compiled on different bases. There may have been differences in the efficiency of the criminal administration. The laws may recognize offences as crimes in one country that are not so recognized in another. One country may punish certain offences by imprisonment, while another may do so by fines. Besides, there may be differences in race, in climate, in political and social condition, that should be taken into account. Ignorance, of course, is not the only cause of crime. No one asserts that education is

it will be found that the cause is not in her schools, but exists in spite of her schools; for in Prussia, as in all other countries, an illiterate man is many times more likely to commit crime than one who is educated. If, therefore, the average German is more likely to commit crime than the average Frenchman, it is because there is a crime-producing factor in his nature or in the circumstances that surround him which his education has not been able to eliminate.

It is probably true, as stated by Spencer and Buckle, that in a particular country crime is about uniform from year to year—that is, a certain percentage of the population became criminals last year, about the same percentage will become criminals this year and the next, and this uniformity may cover a period of many years. But if the question were examined closely it would be found that in the same country the amount of ignorance is about as uniform from year to year as the amount of crime; and, therefore, no fair-minded person would expect crime to decrease. But suppose a nation could be named whose percentage of criminals has remained uniform for the last fifty or a hundred years, and suppose that in such nation during the same period education has become more general, does it follow necessarily that education has no effect as a preventive of crime? Is not crime more apt to be detected and punished as a nation advances in civilization? Are there not many acts considered as crimes in a highly advanced condition of society that are looked upon with less severity in its earlier, illiterate stages? As population grows more dense, as the struggle for life becomes more intense, as the gates of remunerative employment are closed against famishing thousands, as temptations multiply, is it not reasonable to expect crime to increase? Were it not for the restraining effect of intellectual, moral, and religious influences, our opinion is that it would completely disrupt society and resolve its broken fragments into chaos. The philosophers we have named may reason well in many things; in this their inferences are certainly not justified by the facts.

This discussion has prepared us to take notice of an attack which has recently been made upon our public schools, based on the statistics of education and crime contained in the reports of the census for 1860. These statistics, it is alleged, show that in certain States where education is most general crime is very much more prevalent than in certain other States where a large proportion of the people cannot read and write. They are quoted as proving that the moral condition of the New England States, in particular, with their more than two centuries of free schools, is decidedly worse than the moral condition of the States of the South, where until recently free schools were almost unknown. This is the weapon used against the public schools by Mr. Z. Montgomery in California, Mr. Richard Grant White in New York, and by others in various places throughout the country.

It is perhaps a sufficient answer to give to these critics to say that the census of 1860 is not considered reliable as regards the statistics of crime and pauperism, that the reports are acknowledged to be full of errors by those who compiled them; but even if otherwise, even if there were at the time the census of 1860 was taken more convicts in the prisons of Massachusetts in proportion to population than in those of Virginia, more in those of Connecticut and Pennsylvania than in those of South Carolina and Georgia, it does not follow that education does not tend to prevent crime or that an effective public school system is not a boon to society. Other circumstances calculated to affect crime and the criminal statistics of the two sections, must be considered before the question can be settled. Without doubt, in the years that are gone, the machinery for the detection and punishment of crime was more effective in the North than in the South. Certain offences recognized as crimes by the codes of the former section were not so recognized by those of the latter, and imprisonment for offences was comparatively more common. The population of the South was mainly agricultural and thinly scattered over a large extent of territory, while that of the North, especially in the New England States, was crowded into manufacturing towns and villages, and subject to all the temptations such places afford. The South was almost wholly free from the influence of the foreign element, which at the North not only furnished a large proportion of convicts for the prisons, but did much to demoralize those born on the

soil. Besides, in the old slavery times, many petty offences for which persons were sent to jail at the North were punished at the South, if punished at all, on the plantation. It was the interest of the masters to keep their slaves out of the courts. For these reasons there may have been more convicts proportionally, in 1860, in the prisons of the North than in those of the South; but the cause is not to be found in the public schools, for in both sections it is the ignorant that curse our communities with crime and fill our prisons with wretched human beings. And, apart from all misleading statistics, it is an undeniable fact that wherever in this country you find public schools long and well established there you find in the highest degree comfort, thrift, intelligence, culture, and whatever else goes to make happy homes and a prosperous people.

No inquiry into the relation of education and crime can be complete without taking into consideration the effect of education upon erring or neglected children, as shown by its results in our houses of refuge, schools of reform, and homes for the friendless. If the worst of children gathered into institutions of this character — children who, if left to themselves, would almost certainly follow a life of crime and end their days in prison — can be made by education and favorable surroundings, in large proportion, useful citizens, no one can doubt that a most effective mode of preventing crime has been discovered. It may seem marvellous to those who have not given attention to the subject, but the results of our reformatories for the young lead to the conclusion that if the population now filling our penitentiaries and prisons had been properly cared for and educated when young, at least three-fourths of them would have been saved to society and themselves. Let the plain facts be stated.

We have before us a table carefully compiled by the best authorities and contained in the proceedings of a convention of managers and superintendents of houses of refuge and schools of reform, held in the city of New York in May, 1857. This table shows, among other things, the whole number of inmates, their average age, the average period of detention, and the per cent. of reformed in some 17 institutions of the class represented, located in eleven different States. The whole number of children admitted was 20,658, their average age $12\frac{3}{4}$ years, the average period of detention about 20 months, and the percentage of reformed *seventy-five*. Seventy-five per cent. of these incorrigibly bad children, these young criminals, reformed in 20 months! Such is the official record.

The late Dr. E. C. Wines, in his work on the "State of Prisons and Child Saving Institutions," estimates that of the 12,000 children now in the reformatories of the country 60 per cent. at least will be trained into good citizens. "Some would claim," he says, "75 or 80 per cent., but statistics do not bear them out." "Perhaps," he adds, "the percentage of worthy citizens trained up among the whole 25,000 in preventive and reformatory schools would be as high as 75 per cent."

The State Public School of Michigan is known all over the country. Its object is "to save children who are in danger of becoming criminals before they have actually become such." It is a school for pauper and vagrant children, children of evil tendencies, and children whose circumstances and surroundings would almost certainly keep them in ignorance and lead them into vice. Hear the cautious statement of results as contained in the report of the superintendent for 1878: "Considering," he says, "the heredity of these children and the influences which surrounded most of them previous to entering the institution, I am myself surprised at the results. There is no doubt that a large majority of them, left where they were, would have become criminals or chronic paupers; but it looks now as though 80 or 90 per cent. would become respectable if not ideal citizens. Coming years can alone determine what the complete results will be." In a paper prepared two years later the superintendent says: "Enough is known to satisfy us that there are very few of the children who go

the City of New York, whose head and inspiring spirit is Rev. Charles L. Brace. The children gathered into the schools directly under the charge of Mr. Brace number many thousands. They are children without home or friends, picked up by policemen on the streets or hunted out of cellars, garrets, or dens of vice—the sons and daughters of paupers, beggars, drunkards, and criminals. Can anything be done for this mass of youthful depravity? Many of them have already been initiated into criminal ways or taken the first steps in vice. All of them are extremely poor, and their hard life has blunted their sensibilities and dwarfed their moral nature. Are they not past help? If virtuous men and good citizens can be made from this unpromising material, will any one longer doubt that we have found the new elixir that can transmute the basest of human metal into the purest of gold? Mr. Brace receives these children into his schools, feeds, clothes, and cares for them. Under his charge they enjoy a pleasant home, have kind friends, and are given an opportunity to learn and to work. Their self respect is cultivated, their conscience quickened, and they are filled with a purpose to be somebody and accomplish something in life. As soon as it can be safely done, they are placed in good homes, mostly in the country, out of the reach of the temptations that might allure them back to their old ways. What is the result? Mr. Brace says not more than three children out of a thousand leave his schools to become paupers and criminals. Thus is proven the wisdom of the much quoted but much doubted sentiment of Solomon: “Train up a child in the way he should go, and when he is old he will not depart from it.”

The State of Pennsylvania at the close of the late civil war undertook the task of providing education and maintenance for all the destitute children of her dead and disabled soldiers. In this benevolent and patriotic task the State became the guardian and caretaker of 12,000 children. The children thus provided for must in all cases be in destitute circumstances—in many cases they are found to be in a condition of actual suffering. Their home surroundings in the main could hardly be worse. Orphaned by the war, their poor mothers in most cases were unable to send them to school, to give them employment, or even to keep them out of bad company or prevent the formation of bad habits. When they come under the charge of the State they are generally very ignorant for children of their age, and about as unpromising morally as any children that can be found. What is the result? Of the 12,000 children admitted into the soldiers' orphan schools, nearly 9,000 have been discharged after remaining in school an average length of time of 6 or 7 years. Probably one-half of these have now reached the age of manhood and entered upon the active business of life. Means are at command of ascertaining where they all are and what they are doing, and a careful canvass of the matter shows that not 2 per cent. of the whole have turned out badly, and at least 90 per cent. have become useful men and women. This is a strong statement, but not stronger than the facts warrant. It shows the wonderful uplifting power of educational influences when properly directed with a fair chance to operate. Pennsylvania has expended in this good work nearly \$7,000,000, but she has more than saved that amount from the lessened cost of her poorhouses, prisons, and penitentiaries.

In the face of facts like these, can any one claim that education does not tend to prevent crime? It is true that our public schools do not accomplish all in this direction that ought to be accomplished. They work at great disadvantage. There are hundreds of thousands of children throughout the nation that they have never yet been able to bring within their reach. A very large proportion of those who do attend school remain under instruction but for a short time, scarcely long enough to acquire the merest elements of knowledge, much less to complete an even moderately liberal course of study or to form a stable moral character. And, at the best, the pupils in the public schools of the United States are under the care of their teachers, on an average, only about one-fourth of the hours of the day, and scarcely more than one-fourth of the days in the year. It frequently follows that the good influences of the school are neutralized by the bad influences of the street, and that vicious com-

panions pull down quite as fast as the best of teachers can build up. Then, the popular demand is for intellectual results; and to produce them teachers tax themselves to the utmost, forgetting that moral instruction, the formation of character, the shaping of life, is the grand purpose of all education. With these and other drawbacks that might be named, it is too much to expect the public schools to rid us of all the evils that afflict society; too much to expect attendance at school for a week, a month, a year, with ability to read, write, and cipher a little, to keep men out of prisons and penitentiaries who have had no home training in their youth, who have been allowed to associate with the bad, taking from them daily lessons in vice and crime, and who have grown up idle and without restraint. But with all its defects, we are well convinced that the system of public schools is the most potential agency, by all odds, at work among us to-day, to root up vice, to lessen crime, to lift up the people to a higher plane of civilization, and to save the sacred principles of republicanism our fathers planted on American soil and bade us cherish with our lives, our fortunes, and our sacred honor.

On behalf of the committee.

J. P. WICKERSHAM, *Chairman.*



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

INSTRUCTION

IN

MORALS AND CIVIL GOVERNMENT.

P. 1464.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, July, 1882.

The importance of training in morality as a feature of the public school teacher's work has engaged the attention of most writers on educational topics and has been frequently adverted to in the different publications of this Office. The scope and character of the instruction in citizenship which our public schools may reasonably be expected to impart were wisely considered, and the need of such instruction warmly urged, in the valuable paper of Mr. Justice Strong that was read before the Department of Superintendence at a recent meeting and printed in Circular of Information No. 2, 1879. The circular which A. Vessiot, the academic inspector of schools at Marseilles, France, recently addressed to the teachers of his district respecting moral and civil instruction, seems to me to contain such valuable suggestions as to the nature of the instruction that may properly be given under this head and such useful hints as to the manner in which it ought to be conveyed that I have caused it to be translated, in the hope that it may prove of service in this country.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

MORAL AND CIVIL INSTRUCTION.

We advise our teachers to assign hereafter a large place in their work to instruction in morals and civil government.

Moral and civil instruction meets the wants as well as the wishes of the country; it is a necessary consequence of the profound change which is taking place in our institutions, in our laws, in our manners. The establishment of the republic and of universal suffrage, which is its basis, has given to the school a new character; it imposes upon the teacher new duties. The primary school is no longer merely local, communal; it has become in the highest degree a national institution, on which even the entire future of the country depends. It is no longer a place to which the child resorts to acquire certain information that may prove useful to him in private life; it is the source from which is to be drawn, together with the principles of universal morality, a knowledge of his rights and duties in regard to public life; it is the school of citizenship and patriotism.

The function, then, of the teacher is notably increased, and his responsibility extended. The teacher used to drill his pupils in reading, writing, and arithmetic; now, without neglecting that portion of his duty, he ought to have a higher ambition, namely, that of raising up for the country defenders and for the republic citizens.

The children now under his care will one day be voters and soldiers; they will have their share of influence in shaping the future of the country; their souls must then be well tempered, their minds must be enlightened; they must be acquainted with the intelligence of their times, with the society of which they are to become members, the civil duties they will have to fulfil, the institutions they will have to strengthen. They must be inspired with a generous patriotism; this does not mean that they are to be taught to hate foreign peoples—let us leave that cruel instruction to others—but that they are to nourish a passionate love of their own country. True patriotism consists in love, and not hate; it does not consist in any attempted systematic alteration of well established historical facts or jealous depreciation of the greatness and glories of other peoples. No, it does not involve the humiliation of others; it is inspired by justice, it is allied to a noble emulation. This it is that France needs, and this is what French youth should be taught.

Undoubtedly this double instruction is not entirely new, and it would be erroneous to suppose that moral and civil instruction now first makes its sudden appearance in our schools. Many of our teachers are now, and long have been, giving lessons calculated to make their pupils worthy people and good citizens. In fact, all instruction, the humblest and that the furthest removed from morality properly so called, has nevertheless a certain improving influence, and every virtuous person by the mere fact of frequent intercourse communicates to others, and especially to children, something of his own moral elevation. But what has heretofore been in some degree the involuntary effect of the instruction itself and of the morality of the teachers—personal in its inspiration and consequently unequal and intermittent—will now be due to a common and sustained effort towards a clearly defined object, to a general and persistent endeavor, in a word, to a branch of instruction. What shall be its character? What its form? * * *

The teacher must grapple with the problem how to render lucid and pleasing those truths which flow from the very nature of man and the existence of society, and to induce children to make them the rules of their conduct. What is needed is that there should be awakened, developed, fortified in them those sentiments which give dignity to man, honor to families, and power to states.

Moral and civil instruction ought not then to be confined to one division or subdivision of the scholastic programme, restricted to one class or to a prescribed hour,

pressed in the narrow mould of a few inert formulas or solemn maxims; it ought to permeate all parts of the work of instruction, blossoming out in varied developments and reappearing every day and every hour; it ought to be the life, the soul, of the school. It is in the school that a child should draw in morality and patriotism as he inspires air, without noticing it; for to teach morality successfully there is no call for too much moralizing. That moral lesson which is announced risks being lost. Moral instruction should be combined with everything, but insensibly, like those nutritive elements which the scientist finds reappearing in all sorts of food, but which are concealed under the infinite variety of color and form in which nature clothes animals and plants, and which man unwittingly assimilates without a suspicion. Thus moral instruction will enter into the various work of the class, the readings, recitations, dictations, the stories related by the teacher, the selections drawn from the poets and romancers, the familiar and sprightly conversations, the grave reflections on history, the games, the promenades — being everywhere present, in short, without making its presence remarked.

Does it follow that theory should be absolutely banished from the school? No, but it should have only the smallest place. It will suffice if once a week, and preferably at its close, the teacher expresses the substance of the last lessons he has reviewed and puts it into didactic form.

As far as practicable, it is the child himself who ought to draw the rules and moral laws from the facts which contain them, as the fruit contains the seed; and this is not so difficult as it appears. A reading finished, a story related, the teacher by means of questions invites the judgment of the child on the actions of this or that character who has figured in the recital; rarely does the child err as to the moral value of the actions submitted to his consideration. The teacher then asks the child if he would pronounce a similar judgment on all men who should act in the same way, and thus leads him to generalize his decision, that is, to formulate a principle, a rule. The child thus becomes his own legislator; he has himself discovered the law; having made it he understands it, and he obeys it more willingly because it has imposed itself upon his reason instead of being imposed upon his will. It does not seem needful to us to mark out for teachers a programme of moral instruction; such programmes are to be had in abundance; but we prefer to leave with them the responsibility of incorporating this instruction with their other work as they deem proper. The weekly report, however, should contain a résumé of what has been done. These résumés themselves, collected for a period of several months, will gradually form a real course in moral instruction which the teacher, in the light of his experience, can extend or limit as he desires.

But our teachers should not forget that the work of giving moral instruction imposes upon them a moral obligation to make their conduct accord with their instruction. Of all lessons the best is the living lesson, the example of the teacher himself. Like teacher, like pupils. Children have a wonderful shrewdness in detecting inconsistencies between the conduct of the teacher and his counsels. The efficacy of this instruction is to be measured by the moral value of those who give it; and from this point of view we are confident that moral instruction will exert a beneficial influence on the teachers themselves and that they will profit by their own lessons.

As to instruction in civil government properly so called, aside from the sentiments which it is its mission to encourage and disseminate, it ought to afford the child an image of society, to present to his eyes the different parts of a vast and rich whole; in this there is the material needed for methodical training, and, consequently, for a programme in which its limits are indicated and its work laid out.

We confidently intrust this double instruction to the enlightened zeal of the primary inspectors, to the tried patriotism of our teachers. We trustingly ask them to make a great and generous effort to elevate national education, to worthily respond alike to the solicitude of the government and the chambers and to the ever increasing

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

NATIONAL PEDAGOGIC CONGRESS OF SPAIN.

P. 1466.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., August 16, 1882.

The improvement of man's condition by the education of the young under the direction of civil administrations is becoming the recognized method of assured progress the world over.

The teachers of the United States will be interested in this summary of the proceedings of the meeting of the Spanish teachers, at which their chief ruler presided and spoke words of encouragement.

Special attention is invited to the effort to bring together the teachers and the working people, whose capital is their skill at handicraft, which so specially depends upon the intelligence and character to be acquired by education and training. The teacher is the friend of all the people and their agent for good.

JOHN EATON,
Commissioner.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

NATIONAL PEDAGOGIC CONGRESS OF SPAIN.

On the 28th of last May the National Pedagogic Congress of Spain met at Madrid in the Central University. King Alphonso and the entire foreign diplomatic corps were present. General Ros de Olano presided, and there was an attendance of 827 male and 205 female teachers.

This was the first meeting of the congress, and many addresses were made, the first of which was delivered by Don Pedro de Alcantara Garcia, secretary of the congress. After calling attention to the importance which all nations now attach to the development and improvement of primary instruction, he proceeded to enumerate various pedagogic congresses which have been held from time to time since 1848 at Hamburg, Dresden, Hanover, and Frankfort, in Switzerland, Belgium, Austria, Italy, France, England, and Russia, and even in Mexico, and the different attempts in the same direction made in Spain in 1870, 1876, and 1881. None of these latter, however, had the importance of the present congress.

The idea of this congress arose in the Madrid society *El Fomento de las Artes*, composed in great part of artisans. The president of this society, Señor Don Modesto Fernandez y Gonzalez, believing that a closer union ought to exist between education and labor, conceived the idea of bringing together the givers and the receivers of knowledge—the teachers and the workers—and so render the former more capable of being useful to the latter. To this end he thought it expedient to bring the teachers in a body in contact with the artisans, so as to find out their wishes and needs and to discuss together their theories about methods of teaching. From the coöperation of both parties there will result indirectly improvements in school appliances, in methods of instruction, and in the condition of the teachers themselves. The attention of the Spanish Government cannot fail to be drawn to the action of this congress.

After the address of the secretary, Don José Garcia y Garcia explained the object of the society *El Fomento de las Artes*, how the idea of holding the congress occurred to it, and what it expected the congress to do. In his opinion, it is the office of such an assembly to find some way of solving the great problem of the education of children and the real diffusion of instruction—not by relying upon the state to take the initiative exclusively, but by looking to the union and coöperation of individuals, which, at the present day, form the indispensable basis of all reform in Spain. He hoped that it would be decided to compel scholars to attend school until their fourteenth year, at which age they are able to learn and remember the things they have to know when they enter the workshop as artisans. He also hoped that something would be done towards diminishing the number of scholars in classes, while increasing the number of schools, and in reference to the treatment of teachers and the dignity of their position.

The Marquis de Guad-el-Jelu, Señor Don Antonio Ros de Olano, made some remarks in praise of those who have devoted themselves to the instruction of the Spanish people and by whose efforts primary education in Spain has been raised to its present condition. He then addressed the female teachers, and, reminding them of the delicate duties which fall to their share in the instruction of young girls, urged them to do all in their power, while training the intellects of their pupils, to awaken and cultivate in their minds such sentiments and ideas as would help to form in them in after

years desirable characters as women. It is to these young girls, he said, that the country must look in the future for its men of learning and science, its artisans, and its soldiers.

The King then spoke as follows:

GENTLEMEN: Courtesy compels me to address you, not only in order to express my gratitude to the president and secretary of the congress and the representative of the Fomento de las Artes for the friendly things they have said to me and the importance they have attributed to my concurrence in this interesting affair, but also that I may testify the satisfaction I feel at having the honor to preside at this first pedagogic congress.

Only a few days ago the congress of hygienists met in this hall, for the purpose of instituting a society having in view the improvement of the material condition of the Spanish people. To-day the representatives of the educating class, which more than any other has it in its power to contribute to the development of the national intelligence, instruction, and culture, have met here for the same purpose. Is not this evidence, gentlemen, that these two ideas, which are complementary of each other, that these two currents, which flow from the duality of human nature, are the two motors which urge our country slowly but surely onward in the path of civilization and progress? How can I add anything to what you have heard from those who have just preceded me? They have shown you clearly how great and noble is the mission of the teacher, for he draws man out of that state of ignorance which makes him resemble a being deprived of reason and opens his heart and eyes to the grand ideas which form the foundation of all society: God, country, family, and charity.

It is, therefore, my duty to express in this hall not only the interest I feel in the lot of the Spanish teacher, but also my sincere desire to contribute in such manner as my duties and prerogatives may permit to an amelioration of his condition, in which effort the government will assist me with an interest equal to my own. I was once a school boy, and I feel a deep sense of gratitude to my own beloved teachers, and God knows that if it depended on me alone Spanish teachers would have no cause to envy their fellows in the most advanced countries of Europe.

But Señor Garcia y Garcia, the representative of the Fomento de las Artes, has well said that the time has passed when it was believed that an initiative on the part of the state would accomplish everything. Neither is it any longer just that the state should bear all the responsibility. The King and the government can help, encourage, direct, and regulate the progress of instruction, but its inception lies in the current of public opinion, which are so powerful that nothing else can take their place. As I have already said in this hall, ignorance is the worst form of slavery, and only those redeem themselves from it who yearn to be rid of it and who know how to render themselves worthy of obtaining and preserving such freedom.

This speech was frequently interrupted by heartfelt applause. The congress was declared open, and the first session adjourned.

The next day the following questions were discussed: What should be the organization and the general conditions of public education? Should such education be gratuitous or paid for, obligatory or voluntary? What dispositions and means should be taken to diffuse education among the people and increase the attendance of scholars at primary schools?

This second session closed with an incident which shows that much gratitude is felt in Spain to those who are occupied with popular instruction and which must have been very flattering to the gentleman most prominently concerned. When Señor Moyano entered the hall, Señor Don Modesto Fernandez y Gonzalez arose and, greeting him as the illustrious author of the existing law on public instruction, reviewed at some length his services while at the head of the ministry of the Fomento. After these remarks which were received with hearty applause, all the members of the congress rose to their feet and unanimously elected Señor Moyano honorary president of the congress by acclamation.

DEPARTMENT OF THE INTERIOR,
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NATURAL SCIENCE - 2d

IN

SECONDARY SCHOOLS.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 30, 1882.

How shall I teach the natural sciences? How shall I make my pupils acquainted with a knowledge of common things? These are questions greatly agitated among teachers.

The following translation is an abstract of an address upon the importance and method of instruction in natural sciences in secondary schools. It was delivered at a meeting of secondary school teachers of the Canton Vaud by F. Mühlberg, and is believed to be one of the best contributions yet made to the answers of the above questions.

JOHN EATON,
Commissioner.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

NATURAL SCIENCE IN SECONDARY SCHOOLS.

There are two leading views of the object of teaching natural sciences, one of long standing and the other of more recent growth. According to the former, the aim of such teaching is to furnish material knowledge and give the student a certain amount of practical training for making that knowledge effective in business affairs. The later idea is to supply a general intellectual training, so as to fit students to acquire knowledge for themselves. As in practical life ability to acquire is preferable to simple possession, so in intellectual matters the same preference exists, but in a greater degree. Moreover there is so much to be taught, while the time at our disposal is very limited, that a just selection of subject matter is extremely difficult, particularly since scholars of the present age often have not decided what occupation they will follow, and, even when they have made a choice subsequent events frequently change all their plans. Aside from this consideration, moreover, if the only point were to impart to young students a definite amount of useful information committed to memory, it would be better to furnish them at once with books of reference, which are more reliable than memory and which would also cost the state less than the employment of teachers. Besides, the memory is so much exercised in other ways, and other departments of instruction make such heavy demands upon it, that it ought not to be too heavily burdened by an additional amount of scientific study in which an effort is made to learn a variety of things, names, and classifications that only arouse curiosity for the moment and soon deaden intellectual activity. Of course one gets on faster with a child by carrying it, but it is for the child's interest to teach it to run and to swim by itself. In the same way it is better not to give young scholars scientific knowledge ready made, but to teach them the way to it. By imparting to them results obtained by others the ideal purpose of instruction is seriously prejudiced, the sense of scientifically accurate thinking is destroyed, the belief in authority is increased instead of checked, and the mind becomes surfeited instead of finding pleasure in the exercise of its powers.

This partly explains why high school teachers often prefer those of their scholars who have received no scientific education to those who have received an ill taught smattering of it. But the success of systematic scientific studies in high schools would be much greater, and above all much more certain, if the students had been previously well and methodically taught in the preliminaries in intermediate schools. If such a strict, methodical mental training is omitted in the intermediate schools its loss can hardly be supplied in the high schools.

A certain amount of fundamental knowledge is of course necessary to the student, but this is gradually gained by practical exercise in elementary work in natural history, using meanwhile as material for instruction in such study familiar objects and the more noticeable phenomena of daily occurrence instead of rarities and curiosities. Such knowledge is also more firmly fixed in the mind by observation than by memorizing alone. Natural science is an experimental science, and the beginner must follow the path marked out by it in order to reach the same end. This he must do not by laboriously committing to memory the material of his knowledge as recorded in books, but by learning it through his own observation. It should not be

acquired in a systematic but in a methodical way.¹ Teachers, and particularly those who are beginners in their profession, often make the mistake of trying to teach their scholars the advanced knowledge of their own college studies, and of supposing that fifteen year old boys are able to digest matter in a concentrated form which they themselves could only master at the university after numerous demonstrations. They forget that young pupils have not sufficiently developed ideas for such instruction, and that consequently they ought not to proceed with them from the general to the particular, that is to say, according to the analytical method, but should first establish a foundation of individual observations which can finally be united synthetically into a general idea.

Starting from these general considerations the following method of science teaching is proposed :

(In such instruction the first thing necessary is practice in observing and in the use of all the senses for that purpose.) Gymnasts, painters, and musicians teach us that constant practice alone brings the muscles to obey perfectly the commands of the will, and the same is true of the senses. Not every one who can see sees carefully and accurately. And herein lies the superiority of the trained observer, that he has learned to notice the numerous forms and appearances of things so that he at once sees in them a great deal which others do not see at all.

This constant exercise in carefully observing objects of study should of course be progressive from the easy and simple to the difficult. At first individual things are to be studied by themselves, care being taken not to select objects from too limited a circle; not to confine the attention to mammals for instance while studying the animal kingdom, but to take examples from all classes and divisions of nature. Afterwards comes a comparison of these things previously studied separately, so as to bring out their resemblances and differences. This leads finally to a bringing together of all the things observed, the pupils being confined to their own observations and making from them a general summary, or what may be called a system. In the higher grades of secondary schools it is indispensable to point out that the principal systematic ideas (such as species, genus, &c.) are always obtained by this summing up into one idea of scattered facts of observation.

Since plants offer the most abundant material for study and also early attract the attention of children, it is well to begin the course of instruction with them and proceed to the study of animals later. The examination and determination of minerals are subjects much more difficult to learn. Although the forms of minerals are much simpler than those of plants or animals, yet the beginner will find it much more difficult to tell the normal from the accidental in them than in other cases, as well as to be able to detect the regular or normal forms of one and the same mineral when disguised by accidental causes. Moreover, before mineralogy can be successfully taught, students must have some knowledge of physics, chemistry, and stereometry. However, every scholar should be induced to notice how various kinds of minerals and rocks present themselves in mass in his own neighborhood, and learn to know them. By what they will have learned so far of natural science young students will have reached as a material result of their studies a development of the sense of form, an enlargement of their knowledge of material things and of their ideas about them, and the perception that the earth is a whole made up of interdependent individual parts.

In the next higher grade, training in observation should be directed towards mak-

¹ By systematic instruction the author means teaching the general principles or "laws" which are the results of generalizing from individual observations, without showing how these general principles were reached. These "laws" or principles when classified and arranged form systems. By methodical instruction, on the other hand, he means teaching the mode of reaching these general principles, viz, by bringing together into one general idea a sufficient number of isolated observations. This is the inductive method, and he insists upon first instructing science scholars in this way before permitting the use of the reverse operation, viz, deduction from the "laws" so obtained to individual cases. This deductive method he also calls analytical.

ing comparisons of the different stages of development of the same organism, that is to say, the pupils should commence the study of natural history. At the same time, in studying the changes which bodies experience under the influence of such forces as do not affect their nature or substance, the domain of physics is reached. Subsequently, because more difficult for beginners, comes instruction in observing the mutual changes of their substance which bodies exert upon each other by which their nature is radically altered, and here begins the study of chemistry. By thus leading the pupil in an orderly manner to observe the various changes to which bodies are subject, an idea is obtained of the real meaning of the word "nature" (from *nasci*, to be born) as expressing something which is constantly and forever springing into being and constantly changing into new forms, so that the scholar learns to think of nature as a whole moved and quickened by internal forces.

(Hand in hand with observation goes discipline in describing the things observed.) One single observation accurately made is of more value than a thousand anecdotes and illustrations, with which many teachers believe they ought to enliven their instruction. It is not the teacher, however, but the scholar who ought to make the description of the things under observation, that is, the things he has himself observed, not the things with which he has burdened his memory without observation. Accurate description (with drawings, if possible) serves as a check upon the inaccuracy of the observations, and besides gives students a correct comprehension of words with which they are already familiar, or by leading them to look up new terms enriches their vocabulary and develops a versatility in the use of language, particularly if the teacher is strict in limiting them to the use of general terms. Practice in giving definitions should be undertaken at the same time. This kind of scientific teaching would be a capital aid to instruction in the mother tongue, and in a way for which there is no substitute; for here there is a kind of direct translation out of nature into one's own speech. In fact there are in this case neither words nor forms of sentences to start with, and the authority and help of dictionaries are wanting, so that the student has to rely upon himself and must acquire a good degree of independence in giving his ideas. The objection that the same end could be reached by the ordinary instruction in the mother tongue as an accompaniment to natural science teaching is not a sound one, because the teacher of languages is unfortunately too often destitute of the necessary material knowledge, and is often also ignorant of the methodical way of schooling the mind which should be followed in teaching the natural sciences. Of course this practice in giving clear descriptions would follow the progress of the subject matter taught—from the easy to the difficult—and the selection of material for this reason also ought to be varied as much as possible. After scholars have learned to understand the accurate significance of words by the method above sketched out they will be better qualified to convey their own ideas in a simple and clear way to others, and also understand more fully the meaning of what is said to them, a faculty of the greatest importance in practical life as well as an essential requisite of education in general.

(Instruction in natural science should also be a training in thinking. Pupils should be led to form general ideas or laws from the objects of study and the phenomena presented to them, to draw conclusions upon the causes of such phenomena, and predict the future action of the causes they have learned to know. In this way not only a knowledge but also an understanding of nature is reached.) If the young student is led to reflect upon the meaning of the most commonplace natural phenomena, to investigate them himself and compare them together (as, for instance, the form, color, and smell of flowers, the color, coverings, and structure of fruits and seeds, the form and color of the organs of animals, &c.), he will find that while advancing in knowledge the tediousness of having to learn is done away with and pleasure takes its place. As the material result of this side of teaching natural science, the conviction will spring up in the mind of the pupil that all phenomena are governed by fixed, eternal, and unchangeable laws.

✓ To what has been said should be added a few words about teachers, school books, methods and means of teaching, inspectors, and natural history collections, &c.)

The teacher of natural science ought to have the necessary special scientific schooling for that purpose. In no department of instruction is it less permissible to teach authoritatively than in this, and to make it a subordinate branch for a teacher not specially prepared for it is often worse than to provide no scientific instruction whatever; for the teacher must not only be master of the material he teaches, but ought also to be a model of the intellectual training he tries to impart; he should have the capacity to observe, describe, and reason accurately about the material of study. In order to give his instruction in such a way as to incite his pupils to an interested activity in their studies, it is indispensable for him constantly to try to develop his own intellectual powers further, and continually refresh them by special studies (which, however, should not be introduced into the school). Not only should every lesson be well prepared, but after every lesson the teacher should give himself an account of the result of his instruction, and, in case of ill success, he should ascribe its cause to himself rather than to his pupils, so as to avoid mistakes in future. One of the commonest faults of teachers is that in order to get on with their pupils as fast as possible they themselves describe the objects or phenomena under consideration and derive laws from them, instead of allowing the scholars to do so. They predigest, in other words, to a certain extent, the intellectual food which they ought to allow the scholars to attack for themselves, subject to control and correction only. A science teacher should be able to show his pupils how to give graphic reproductions of what they have learned. Whatever drawing might be necessary for this purpose should not however be presented ready made to scholars, but should be drawn by the teacher on the large scale on the slate or board before their eyes. If the teacher, besides his instruction proper, has to furnish the material for study (e. g., plants, &c.), prepare demonstrations, lead excursions into the field, and have charge of the natural history collections of the scholars, it is clear that a great burden is laid upon him, which is all the greater because natural science teaching is by itself more fatiguing than other branches, since it requires the guidance of each individual scholar, and because the attention of the teacher must be divided between the different scholars, the material for demonstration, and the progress of the instruction.

(The natural science school book should be used only as a book of reference in reviewing, as a means of saving writing, for recalling to memory the things observed in the course of study, as a help in looking up modes of expression, and particularly as a general model.) It should remain closed while teaching is going on. It ought, above all, to be in every respect up to the times in its subject matter, and while being as brief as possible it should afford an accurate and complete selection of topics. It would be a great mistake if the school book were made a transcript of the course of teaching. It ought therefore to have a systematic and not a methodical arrangement, so that at the end of the course it would serve as a general summary of the observations and inductions made by the scholars. It is indispensable for scholars to prepare their own descriptions and drawings and work up their notes in the form of small treatises or dissertations notwithstanding a simultaneous use of the school book.

Methods of instruction are generally faulty in aiming at a practical training for some business career at a stage where a general training of the mind is the first essential, and in attributing too much weight to systematic instruction. The proper plan of instruction is to make at the outset demands which all the scholars can meet, and not to lead a few qualified scholars to a higher mark. The real master is the one who restricts the scope of the labors of his pupils but is able to bring them all to the limit he has set. By placing his requirements upon them too high he anticipates the aim of the higher schools, and the indigestibility of the material dulls the minds of his pupils and disturbs the quiet development of their thinking powers, or a too early maturity makes them indifferent to further effort.

In this department of instruction (no repeating from memory things not observed

by the students themselves and no mere reproduction of school book information should be asked for either in the examinations or by inspectors.) Stereotyped questions and answers give no satisfaction, but the aim should be to have the scholars give answers to the questions asked them in their own language, and not that of their teachers or school books. The inspector should look not so much at the variety of information the scholars possess as at their ability and skill in acquiring knowledge. It is not so desirable for scholars to know many things as to thoroughly master and consider from all sides the limited amount of knowledge they have already acquired. Moreover, the inspector should see to it that the phenomena of every day life and the common objects of nature are used as material for practice in observation. Instead of permitting scholars to report upon out-of-the-way things which they have never seen themselves, he should see whether they know how to treat objects, whether known to them or new, which they have actually observed. He will have occasion to notice that very often a scholar who makes an excellent showing where his knowledge has come from memorizing without observation, is unable to recognize an object submitted to him even if he has already described it from the text book. Acting upon the hints above given, inspectors are recommended to notice how text books are used in teaching, how the demonstrations are carried out, whether and in what way the material and verbal errors of the pupils are corrected by the teachers, whether teachers make their pupils speak only in general terms, and finally what sort of dissertations or treatises the scholars have made aside from the text book.

It is clear from the foregoing that every school ought to be provided with a collection of material and apparatus for demonstration. Too much demonstration should not be allowed at one time, but no lesson ought to pass without laying before the scholars the things which they are studying. Every scholar should be furnished with a good lens for studying more closely very small objects. This lens will also prove useful in many ways in after life.

It is advisable to begin instruction in scientific observation with plants, because every scholar can bring with him into school a perfectly good specimen of some of the numerous plants about him. The species to be studied must be carefully selected from the great number at disposal, so as to make a beginning with the simplest and plainest forms, and bring in representatives of all the principal groups of the vegetable kingdom. It would be advantageous in this connection to select specimens of useful and poisonous plants for study, whereby the sentiments of those who demand a practical tendency in scientific teaching would be regarded. Inasmuch as instruction in botany is limited to summer, plenty of fresh material is always at hand. But it is necessary for the school to have a herbarium of the plants and vegetable products of the region, so that at the general review later in the year the scholars can have furnished them whatever details they may have forgotten.

As a rule specimens of animals and minerals cannot be brought into the school room by the scholars, nor can every scholar be provided with a specimen. In such cases one illustration must serve for demonstration, for the whole class, and it cannot be too large, too well drawn, and too distinct. Moreover, the school can have a tolerably large collection of the commoner kinds of insects, snails, &c., kept in small glass cases that can be distributed to the scholars during the recitation. Of such animals, plants, and apparatus as cannot be provided in their natural condition, the school should have as large and attractive representations as possible. In addition to these natural objects, apparatus, and pictures, some technical, microscopical, and anatomical preparations should be added, and, if possible, an aquarium, some house plants, &c. This collection need not be large and cumbersome, for a small but good selection of as striking and consequently of as interesting specimens as possible, preferably of our most ordinary domestic species, will be of the most service and least cost. Such a collection should only contain representations for illustrating the principal systematic groups, the colors and forms of animals at different stages of life and seasons of the year, and for showing the relation between form, color, and abode of ani-

mals. A few exotics would serve to show the differences between organisms of other lands and of our own. The collection may also contain specimens of plants and animals of technical importance, animal and vegetable products, the important parts of animals and plants (such as fruits, skeletons, skulls), animal dwellings, &c. Articles sent to schools by private individuals in order that posterity may read the names of the donors on the labels generally serve no useful purpose and take up valuable space.

It would be a good plan for the proper authorities of the canton to make lists of the articles needed at each school, make it obligatory to supply them, and inform the teachers where they can obtain them of good quality and at the least cost. If purchases were made in common the collections could be obtained at a much less cost. The expense should not deter the boards from making such purchases, for these means of teaching are just as important to schools as the other appurtenances, such as the school-houses, the benches, &c. At any rate the teachers themselves, with the aid of their scholars, friends of the school, hunters, foresters, farmers, &c., can add to the collection many instructive objects without any expense of money. In this way the complete natural history of every locality can be illustrated. And such a collection will be of scientific value, particularly if it is properly arranged and named with the help, perhaps, of kindly disposed scientific men, and in this case it will aid the scholars in arranging their own collections. For these purposes, and in order that it may be a constant source of instruction, the collection should be always accessible, if not in the school room itself, where it would be exposed to dust and dirt, at any rate in an adjoining room well lighted and provided with neat glass cases for containing the specimens.

Natural history teaching would be greatly facilitated if the scholars were compelled to make small collections of their own—not formal museums, but limited collections of typical specimens of the commonest plants, animals, and minerals of the neighborhood, especially of such objects as have been studied and can be easily prepared by the scholars themselves (this would exclude all stuffed animals). Such collections could, of course, be enlarged by articles brought by relatives or friends who have travelled abroad, or which might even be purchased occasionally for trifling sums. Any one object in such a collection (e. g., a leaf or a specimen of a mineral) can be repeatedly figured by the scholars from different points of view, and so give occasion for the habit of a thorough, many sided study of even a common thing. At the same time these collections give practice in determining (classifying) and arranging specimens. They afford recreation to the whole body, and particularly to the eye, which has to accommodate itself to distance while collecting in the open air, and so finds relief from the close attention of the school room. So, also, if scholars prepare the boxes and cases for preserving their specimens, they acquire dexterity and adroitness. This kind of work, which requires much time, may be put off until vacation in order not to interfere with other branches of study. The school will aid the plan of having scholars make natural history collections by planning little excursions, placing utensils and apparatus for making the collections at the disposal of the scholars, and permitting them to determine and arrange their collections in the school museum with the help and under the control of the teachers. The latter must take care that making collections does not become a rage with the pupils, and all tendency to cruelty must be checked.

Objections to this practice of making collections, on the ground that it requires too much time, money, and labor, and turns scholars away from other branches of study, are unfounded. The recreation it affords renders scholars all the more willing to turn to other studies with fresh invigoration. Parents also who at first look askance at this mode of study soon become favorably disposed to it as soon as they find out how decidedly it sharpens the perceptions of their children, develops their capabilities, increases their enjoyment of life and of nature, and also has a healthy moral effect in taking them away from fatiguing parades and other more hurtful pastimes. Every

teacher who understands how to direct the activity of his scholars in this respect into good paths will earn the thanks of their parents and their own in later years.

For the purpose of illustrating the manner of collecting pointed out in the discourse a model of a collection made by scholars of different schools was shown the assembly. Every school should have such a model. It consisted of—

(1) A morphological herbarium and a collection of fruits and seeds made by a scholar of the first class of the canton school in Aarau.

(2) A small zoölogical collection of a scholar of the second class of the canton school in Aarau.

(3) A collection of models of crystals in gypsum made by a scholar of the third class of the canton school in Aarau.

(4) A mineralogical collection made by a third class of the canton school in Aarau.

(5) A small local geognostic collection made by the scholars of a fourth class of the canton school in Aarau.

(6) Models of a mineralogical, rock, and geognostic collection for a secondary school, which with some modifications might be collected by scholars of the third and fourth classes.

All the collections are of such a character that they can be of excellent service to the school in natural history studies. Nos. 2, 4, 5, and 6 are in suitable chests made by the scholars, and every collection is in a specially constructed box so that it can be packed up and shipped with safety.

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DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.



HIGH SCHOOLS FOR GIRLS IN SWEDEN.

P. 1487

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, November 3, 1882.

Among the most engrossing topics of educational interest at the present day are the numerous questions connected with the improvement of the education of women. I am called upon to give the experience in this connection in every part of the civilized world. Reports of very interesting and successful improvements in Sweden have recently come to hand, a summary of which is hereby submitted.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

HIGH SCHOOLS FOR GIRLS IN SWEDEN.

Until the early part of this century the education of women had preserved an exclusively private character in Sweden. The rich families of the aristocracy intrusted the education of their daughters to governesses, and the middle classes in easy circumstances had recourse to private schools established in the cities or the country. These schools were always in charge of women, and were ordinarily combined with accommodations for boarding a greater or less number of pupils. A certain number of women received in this way a relatively good education, considering the demands of the times, but the great majority, even among the educated classes, were content with very elementary instruction. According to the ideas then in vogue, it was a waste of time for women to devote themselves much to study; it was enough for them to know how to manage their domestic affairs properly and to appear well in society. In the private boarding schools the principal aim was to enable the scholars to carry on a conversation in foreign languages, especially French. Music, painting, and fancy work held a subordinate place. Religious instruction was generally given by a clergyman and embraced as a minimum the knowledge necessary for the confirmation of catechumens. The study of history, geography, and mathematics was reduced to the lowest terms, and there was no question of natural sciences.

Between the years 1820 and 1830 the need of public establishments for young girls began to be felt. In 1826 a merchant of Gothenburg, M. Jonas Kjellberg, bequeathed to that city the sum of 50,000 crowns (about \$13,500), in memory of his wife, for the establishment of an institution for the higher education of women. That institution was opened in 1835; it has received additional gifts at different times from the Kjellberg family, and is still in operation under the name of "The Kjellberg School." In 1831 there was opened at Stockholm, through the efforts of Bishop Wallin, a new school for the education of women, which was designed to enable young girls to acquire the same serious and substantial instruction boys received in the public schools. This establishment is still in existence, under the name of "The Wallin School." It is a strictly private institution. All the measures tending to elevate the instruction of women could not, however, attain their complete development without government aid in providing capable teachers. A vigorous impulse in this direction was given by a number of professors and men of learning, interested in the education of women, who organized at Stockholm, in the winter of 1858-'59, a course of higher instruction for adult females. Many of their scholars were already teachers and others wished to prepare themselves for that vocation. From that moment the government took the movement in hand. The first normal schools for female teachers of primary schools were opened in 1860 and the normal school for female teachers of secondary schools was opened at Stockholm in 1861. Now there are 5 government normal schools for female teachers of primary schools and 7 for males. More than half the teachers of the primary schools are women who, for the most part, have charge of the lower primary schools. The principal object of the superior normal school for female teachers is to train private teachers, that is, governesses, as well as mistresses of higher girls' schools. At present it graduates twenty or twenty-five such teachers annually.

It was only after the establishment of these normal schools that a sufficient number of secondary schools for girls could be started to meet the demands of the times. In 1866 the Swedish Diet asked the government to inquire what occasion there was for establishing other public institutions for women besides the normal schools above mentioned and to submit any project that might be made upon the subject to the national congress. A commission was appointed to examine into the matter, which submitted a very interesting report, accompanied by a plan for the establishment of public schools for young girls. Acting upon the conclusions of this report, the government asked the assistance of the Diet for the foundation of such schools, but that body refused its assent, regarding the demands upon it satisfied by its support of the existing secondary schools for boys, which were public establishments in which instruction was given almost gratis. Girls' schools being of a private nature, it was thought sufficient to aid them by annual appropriations, which should be directed so as to secure gratuitous instruction to a certain number of poor girls. About 50,000 crowns (about \$13,500) are now paid annually in this way to secondary schools for girls, which are required in return to give instruction to a certain number of poor girls free, and to others for tuition fees not exceeding 50 crowns each per annum. This subsidy must be renewed every three years on application from the schools, accompanied with full information as to the management of the school, the plan of studies, programmes of studies, &c.; in short, with complete statistics of the status of the schools.

The total number of girls' high schools in Sweden is now between 60 and 70. Only one belongs to the government, namely, the practice school attached to the Superior Normal School for female teachers. The object of this school is to serve as a model for other high schools and to give an opportunity to the scholars of the normal school of attending the school exercises and of taking part in them, so as to get practice in teaching. Nearly one-half of these girls' schools are municipal institutions to a greater or less extent. In localities where the district or community has not established such schools, intelligent and educated or tolerably wealthy private individuals have joined together for that purpose. Generally they contribute a considerable sum at the outset to start the institution, and guarantee additional amounts in case of need. The greater part of these schools receive aid from the district in which they are placed or from business concerns in the neighborhood, and some from the general council of the province. It is probable that they will gradually become purely community or district schools, and will eventually be taken in charge by the municipalities. The other half of the girls' high schools are exclusively private, and are established wherever they can be supported by the tuition fees. With the exception of the Kjellberg school at Gothenburg, all the institutions for the superior education of women receive tuition fees. In this respect they differ from all the other educational institutions of the country.

Whereas it was formerly the custom to intrust the education of girls to women exclusively, nearly one-half of these modern girls' high schools have male directors as well as female, but, with the exception of the directors (male and female), their teachers are women. Professors in special branches are called in to give instruction in the schools, but they are not attached to the teaching corps.

The annual expenses of a school of about one hundred scholars are from ten thousand to twelve thousand crowns (\$2,700 to \$3,240). At Gothenburg the "new high school for young girls," with about one hundred and seventy-five pupils, costs 25,000 crowns (\$6,750) against 40,000 crowns (\$10,800) for the two establishments at Stockholm (the Wallin School and the young girls' lyceum), which have about two hundred and fifty scholars each.

The directress of such a school receives a salary of 1,200 crowns a year besides fire and lodging. In some localities the amount is larger, reaching 2,000 crowns (\$540) in some institutions in Stockholm and 2,500 crowns (\$675) in Gothenburg. The directors receive better pay. The largest salary at present is 5,500 crowns (\$1,485). The

salary of the other female teachers ranges from 1,000 to 1,200 crowns, and more. The professors are paid for their special labors at the rate of 2 or 3 crowns an hour.

The normal school teachers are the best paid. There are nine of them at the normal schools for female teachers of primary schools, and four at the Superior Normal School at Stockholm with the practice school annexed. These ladies are paid by the government and receive 1,500 crowns (\$400) in the lower class and 3,500 crowns (\$945) in the upper. Every five years the salary is increased by a bonus of 500 crowns.

The course of instruction in these schools is designed to give girls an education comparable, so far as solidity is concerned, to that which boys receive in secondary schools. One advantage of the somewhat superficial instruction of the old fashioned boarding school was that there was no danger of overworking the scholars, and that a practical, if simple, end was always kept in view, viz, that of training the pupils to appear well in society. The new schools are open to the objections often made against high schools for boys, that they furnish too great a variety of matter and exact an excess of work from the students. Still, the object of education is to develop the intellectual faculties in all directions, and this should be the aim of all educational institutions of the present day. An idea of the scope of the education given in these girls' high schools in Sweden may be obtained from the following programme of subjects taught in one of them, which is substantially a representative one. The figures of the table give the number of hours devoted to each subject of study by each of the classes.

Subjects.	Classes.								Total.
	1	2	3	4	5	6	7	8	
Religion	2	2	3	3	3	3	2	2	20
Swedish language	4	4	4	3	3	3	3	3	27
French language	6	6	6	5	5	5	5	5	43
German language				3	3	2	3	3	14
English language						3	3	3	9
Geography	2	2	2	2	2	1			11
History	2	2	2	2	2	2	3	3	18
Mathematics	2	2	2	3	3	3	4	4	23
Natural sciences		1	1	1	1	2	3	3	12
Calligraphy	2	2	1	1	1				7
Drawing	2	2	2	1½	1½	2	2	2	15
Fancy work	3	3	3	2	2	2			15
Singing	1	1	1	1	1	1	1	1	8
Gymnastics	1½	1½	1½	1½	1½	1½	1½	1½	12
Total	27½	28½	28½	29	29	30½	30½	30½	234

These studies are all obligatory in the three lower classes; in the fourth, fifth, and sixth classes fancy work is optional; in the seventh and eighth classes one of the foreign languages may be dispensed with, as well as geometry and drawing; singing and gymnastics are elective in these two classes. French is the foreign language most in demand. In the western part of the country, however, and in some cities, the schools commence with German, and one of them gives English a prominent place. The fact that German occupies the leading place in secondary schools for boys may account for its comparative popularity in girls' schools, but in the majority of them French holds its sway and has increased in popularity in the last few years.

The age for admission to these high schools for girls is generally fixed at nine years, as in the boys' schools. Most of the girls' schools have a preparatory department which embraces three classes for children from six to nine years. It will appear from

the programme of studies that obligatory instruction is, strictly speaking, limited to the first six classes; consequently obligatory studies are confined to a period ending with the fifteenth year of the pupil's age. A certain liberty of choice of studies exists already in the upper classes of the schools, and this liberty will probably be extended in accordance with the desires of the scholars and others concerned. In this way additional studies of an advanced nature have already been introduced into or grafted upon the regular curriculum, and a line is being drawn between the schools proper and the course of study for adult young women.



DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION.

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PLANTING TREES IN SCHOOL GROUNDS.

DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION,
Washington, April 9, 1883.

The advisability of adorning school grounds by planting shade and ornamental trees in the vicinity of the school-house has frequently been dwelt upon by educational writers and architects and has been more than once referred to in the publications of this Office. Abroad the subject has generally received a greater share of the attention its importance demands than in this country, and in Austria the taste and knowledge of pupils are developed by means of their own contributions in beautifying the school grounds through the planting and care of trees and shrubs. In several States of the American Union, however, there is a growing disposition among school officers to avail themselves of this effective means of culture and to foster a spirit in the community which will facilitate the operation of laws passed for the encouragement of tree planting and the protection of trees; in Connecticut, especially, the late energetic secretary of the State board of education, Hon. B. G. Northrop, inaugurated a movement which is improving the surroundings of schools in the rural districts almost beyond recognition, and in West Virginia the commendable efforts of the department of public instruction, under the direction of Hon. B. L. Butcher, have resulted in similar improvements. The work of Dr. Peaslee, city superintendent of Cincinnati, in the same direction, has also been especially successful.

Many considerations of an obviously persuasive character may readily be adduced to encourage the practice of tree planting, whether the subject be looked at from an economical, a sanitary, or an æsthetic standpoint, and in the excited interest with reference to this subject which characterized the centennial year they were vigorously urged and favorably received. Trees, moreover, are largely planted with a view to benefit posterity, and advantages may accrue that were not at all foreseen by the original planter. A striking illustration of this is afforded in the case of Evelyn's *Sylva*, published in 1664. Evelyn's efforts were mainly directed to introducing ornamental plantations into England, but they eventually resulted in supplying her at an opportune moment with the timber needed in the construction of the navy by means of which she maintained here supremacy at sea during the Napoleonic wars.

The writer of the accompanying letter, Dr. Franklin B. Hough, chief of the forestry division in the Department of Agriculture, is a gentleman whose unusual attainments and wide experience in the science of arboriculture peculiarly entitle him to be heard.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1883.

PLANTING TREES IN SCHOOL GROUNDS.

WASHINGTON, *March 27, 1883.*

SIR : Having been often asked for advice on the matter of tree planting upon grounds adjacent to school-houses and other educational institutions, I deem it proper to submit to you some suggestions on the subject which, if thought suitable, might be recommended by you to those having charge of the property of these establishments. Besides answering the inquiries now pending, and thus relieving me from the care of separate reply, the suggestions, supported by your recommendation, might lead to planting upon these grounds in many places where the intention had not previously been entertained, and the benefits as well in the direct effect secured from actual plantation as indirectly in the cultivation of a taste for rural ornament and homestead improvement might be assured.

GENERAL CONSIDERATIONS.

There are some points to be considered at the outset which apply to all situations and to every case that may arise. Trees planted adjacent to school-houses, academies, and the like will be exceptionally liable to injury from the thoughtless or possibly the malicious acts of children, to prevent which they must be carefully taught the necessity of letting them alone; and incidentally they should be told how important it is, not only with the trees that may be set upon their school-house grounds, but upon plantations generally, whether for ornament or profit, that they should be guarded from injuries of every kind.

There is perhaps no injury to which trees in front of a school-house are more exposed than that of being wounded or broken down through use as hitching posts for horses. To prevent this, there should be provided a sufficient number of strong posts for this use; and as a further protection there should be a bar outside of the outer line of trees and a separate guard around every tree, at least until the trees have grown to a size that will render this protection no longer needed.

In starting groves of trees, it is sometimes cheaper to sow or plant the seeds where the trees are to remain; but in no case will this be possible in the plantations we are considering. The trees used must be first started, and should be grown to as great a size as practicable before they are set. To secure success they should be selected from nursery plantations or from those that have sprung up in open places, such as the seedling trees along fences, so that there may be *an abundance of the small fibrous roots*. Without this precaution they will be very liable to fail. It should be further borne in mind, that if the roots are much exposed to the sun or to a cold or drying wind their vitality may be soon lost. Great care should be taken, if they are brought from an adjoining place and planted immediately, to retain as much soil among them as possible, and to prefer a damp and cloudy day. By placing the roots of the trees as soon as they are drawn from the ground upon a coarse strong sheet of canvas, and binding this around them, this object may be best secured. Straw or moss, a little dampened, will serve this purpose very well, and sometimes the trees may be set in a box or barrel with some of the better soil in which they grew, for their removal. Sometimes trees can be removed in winter with great advantage by digging a trench around them in the fall and allowing the earth to freeze, so that a disk, including the tree and its roots, may be removed entire.

It should, however, be remembered that the transplanting of large trees is a difficult, uncertain, and expensive process, and that as a general rule, for the plantations under notice, the largest size should not exceed two inches in diameter. Trees of half this thickness would be much less likely to fail, and would in five years probably outgrow the larger ones, but they would need a little more protection at first and might not be as much respected as their "big brothers." If of the larger size, they might need bracing with wires to prevent them from being swayed by the winds until their roots are well started. The greatest care should be taken to prevent the wires from cutting into the trees, by placing blocks of wood around the places where the wires are fastened, and by providing that the growth at that place is not too much obstructed while they remain. In taking up a tree we should avoid cutting off the large roots too near the trunk. They should be carefully followed out to a convenient distance, and in setting them again, they should have space enough provided without bending them. Besides the gain in nutrition thus secured by the tree, we have by this means an additional security in the bracing and support secured by a broad base and steady "anchorage." The ends of broken roots should be cut off smooth before the tree is planted.

The holes for the trees should be always made before the trees are brought on the ground. They should be somewhat larger and deeper than those needed in common planting on private lands, because it is desirable to give the trees the best possible opportunity at the start. The surface soil, being generally the best, should be thrown up on one side, and the poorer soil from below on the other. In filling in, the better soil should be returned first, so as to be nearer the roots. In hard clayey soils great advantage is gained by digging the holes in the fall, so that the earth may be exposed to the weather through the winter. The holes might be loosely covered with boards when necessary. If the soil be somewhat sterile, a wagon-load of rich loam, compost, or wood's earth, placed below and around the roots, would be the cheapest means for insuring success. In applying manures care should be taken that they be placed below and near, but not in contact with the roots. In setting the tree it should be placed a trifle deeper than it stood before, the roots should be spread out so that none are doubled, and fine rich soil should be carefully sifted in among them so as to fill every space. Sometimes the roots are dipped in a tub containing a thin mud of rich soil before they are set. In any event, unless the soil is evidently damp enough, the trees should be well watered as soon as they are planted, and this process in dry seasons should be repeated from time to time through the first and second years. If it be a very dry soil, this watering should be continued longer, and this is a service that can be assigned to the scholars with great propriety, but should not be overdone. The soil should be pressed down around the roots to give them a firm hold. In the light porous soil of the prairies it can scarcely be too firmly trodden down, as well at the bottom of the holes before setting, as on the top after the tree is planted. The surface should not be rounded up around the trees, at least no more than to allow for settling, and the tree, when well established, should have the soil around it on the level or, if anything, a little below the general surface. In shovelling paths in the snow, it is well to heap it up around the trees in winter, to prevent them from starting prematurely in spring.

The fresh surface around a newly planted tree, if in a dry climate, should be mulched by a covering of straw, leaves, or of wood chips, the last being always a proper surface-dressing around young trees. If the soil is not otherwise covered as above, it should be kept free from weeds and grass until the trees are well started, and it should be prevented from baking by occasionally raking or hoeing the surface lightly, especially in a dry time. If the grounds are naturally wet, they should be properly drained. In exceptional cases, where irrigation is possible and the soil and climate are of the arid type, this may be the only means for making trees survive.

In taking up a tree for transplanting, a part of the roots will necessarily be left in the ground. It is in many cases necessary to shorten the branches, so that a due balance

may be maintained between the foliage and the roots, for as a rule the trees with most vigorous tops are best supplied with roots. It will be necessary to trim off the side branches of trees planted for ornament around school-houses, until the tops are carried above reach. It is often proper with larger trees to afford some shelter to the trunks thus exposed to the sun, by binding straw around them or by placing a board as a screen on the south side.

WHERE TO PLANT.

It is needless to remark that a school room needs an abundance of fresh air and sufficient light. The trees planted upon the grounds around it should therefore stand far enough away to allow a free circulation of the air, although they might when grown afford a grateful shade. As a general rule, even in the smallest grounds, a row of trees may be planted in the street, six or eight feet from the fence line, but always protected by guards and hitching posts, as already noticed. In small lots the corners only might admit of further planting; but with wider opportunity we may gain some effect from the grouping of trees, and upon still more ample premises, such as should always belong to academies and colleges, we may with great profit attempt the cultivation of trees in considerable variety with the view of securing a pleasing combination of views and object lessons in silviculture. If there be outbuildings, they should be invariably screened by trees, and if there be an adjoining marshy spot, it should be covered with trees or bushes suited to the conditions.

It may sometimes happen that the owners of the adjoining lands may be willing to plant the roadsides leading to the school-house with an avenue of trees, or they may consent to this being done by those interested in the school grounds under improvement. It is always very desirable to enlist the children of the school in these operations, by their assistance in the planting and their care afterward. Where certain trees are assigned to particular scholars or to little committees to whom their protection is intrusted, the interest thus secured would not fail to produce the happiest effect. The trees might be named in memory of some person or some event worthy of remembrance, and the associations thus created would not fail to recall the pleasant associations that happy childhood is sure to impart to after life.

As to the intervals between the trees planted in lines, something will depend upon their kinds and upon the soil, exposure, and other circumstances of the place. As a general rule, in grove and forest planting, a great many more trees must be started than we expect or wish to have grow to full size, and they must be thinned out from time to time as they become crowded. We thus secure high and uniform bodies to the trees, without the need of side pruning. But in the case of trees in avenues, we cannot do this, excepting by sometimes taking out alternate trees. It is sometimes the custom to plant for more immediate effect the alternate trees of some rapidly growing kind, which tend to make the others grow higher, as, for example, poplars and elms, the former being taken out when they are no longer wanted. From fifteen to twenty feet will generally be found a proper interval; but in the case of those with wide spreading tops thirty feet should be allowed.

Before leaving the subject of methods in planting we should not fail to condemn a practice that has been followed in certain irrigated districts in the far West, in which poles of cottonwood, without root or branch and sometimes large enough for telegraph poles, have been set along streets and have grown to become trees. In fact, poles set for telegraph use have thus budded and grown like Aaron's rod where trees were not expected or desired. Such trees, however, become hollow in a few years, and are short lived. The reason is obvious; for the branches are put forth at some distance below the top, which dries up and rots off, leaving a hole open to the rains. The lower end gives off roots around the edge and sides, but the middle part soon rots from the absorption of water until a hollow space is formed from one end to the other. A small tree would outgrow such a pole in a few years and survive half a century after it was dead and forgotten.

WHAT SHOULD WE PLANT?

In a country extending over such a length and breadth as the United States, no general answer could possibly be given to this question, further than this: as a rule we should select, especially for small grounds, the species that grow naturally in the region about and which were found to be most hardy and certain when transplanted. The deciduous species would almost always have preference, except upon grounds of ample size, in which groups and masses of evergreen trees might appear to fine advantage among those that shed their leaves in autumn. There is one situation, however, in which a screen of evergreens would be very generally proper, viz, for the concealment of outhouses and other unsightly premises. For this use the arbor vitæ, Norway spruce, or red cedar in the North, or the vines with evergreen leaves in the South, would be most appropriate. It might sometimes be worth its cost for a neighbor to plant such a screen upon his own side of the fence, along the line of the school-house lot, and this could scarcely fail of proving a welcome addition to plantations upon the public premises adjacent.

In selecting the kinds of trees that should be planted regard should be had to their liability to injury from accident, their tendency to sprout where not wanted, the agreeable or disagreeable odors that they may emit, the ornamental character of their flowers or fruit, their longevity, rate of growth, and other circumstances tending to make them more or less acceptable in the places where they are to remain. It is scarcely worth while to consider the value of their wood, as trees in such places would scarcely ever be cut until they were passing to decay.

Taking up the points of excellence or of disadvantage in the order above mentioned, we will state some considerations that deserve notice under each:

1. *Liability to injury from accident.*—The part most liable to injury is the bark, and wherever any part of this covering is bruised or broken off the wood underneath dies. The wound is only healed by growing over on the sides, and years may be required to repair an injury that can never be entirely made good in the wood within. While most trees are more liable to injury while they are small and all of them are more easily peeled in early summer while the new layer of wood is forming, there are some that acquire greater immunity with age than others. Of all the native trees of the Northern States the American elm (*Ulmus Americana*) is perhaps least liable to accident from a bruise upon the bark; and there are few if any that should be more generally preferred. It carries its shade high above the level of our windows; it is seldom broken or thrown down by the winds; it lives to a great age and grows to a large size; and it presents a majestic and graceful outline as agreeable to the view as its spreading canopy is refreshing in its shade. The red or slippery elm might be liable to be peeled by unruly boys, for its inner bark, and should for this reason be planted only upon private grounds.

The maples are justly prized as shade trees, and the sugar maple (*Acer saccharinum*) may perhaps be placed first on the list, as affording a dense shade and a graceful oval outline; but as we go west its growth becomes slower, until it ceases to be desirable as an ornamental tree. Of the soft maples (*Acer rubrum* and *A. dasycarpum*), the former is noted for its bright red blossoms and the latter for the lighter color on the underside of the leaves and for its very rapid growth, but it is easily broken by the winds and in some localities is liable to injury from borers. Both of the soft maples ripen their seeds early in the season, and should be sown the same year. All of the maples are conspicuous in the declining year from the bright coloring of their autumnal foliage. The box elder or ash-leaved maple (*Negundo aceroides*), a nearly allied species, is a favorite shade-tree in the Western States, and grows well in the middle latitudes of the Atlantic States, but does not endure a cold climate.

The poplars and the cottonwoods (all belonging to the genus *Populus* and forming many species) grow rapidly, and some of them where other trees can scarcely be made to thrive. The tall columnar Lombardy poplar can scarcely be recommended, excepting in the

AN ARBORETUM.

An arboretum is a collection of living trees, planted in as great variety as the soil and climate will permit. The trees should be placed in groups, so that the oaks, maples, birches, pines, spruces, firs, cedars, &c., may be adjacent, generally one of each species and sometimes in great variety, for in most of the cultivated trees many variations from the original form have been produced by accident or have appeared under cultivation. A variety, or "sport," may be propagated without limit by grafting, budding, or layers, but never forms a separate species. In other cases hybrids are produced by accidental cross-fertilization, but both hybrids and varieties, where they bear seeds, tend to produce plants of the original types.

No institution of learning in the country, having grounds sufficiently ample, should be without plantations of this kind, which should always be labelled with their botanical and common names. They are also of first importance in city parks and public grounds, and it is to be earnestly hoped that at no distant day they may be found wherever there is opportunity in these places.

COLLECTIONS.

There is no school-house in the country, whether in city and village or rural district, which might not have at slight expense an interesting collection of the native woods of the vicinity. These specimens should be prepared by having one or more faces planed and polished or varnished to show the grain of the wood when worked to best advantage, and another face simply planed and left in its natural color. There should be some portion of the bark, and it would be still better if there were shown in connection with the wood dried specimens of the leaves and blossoms, the fruit, and the resinous or other products. Such collections made up by the scholars, and correctly labelled, under the care of the teachers, would become object lessons of first importance as an agency for instruction. They would afford the most profitable kind of employment for the leisure hours, and might awaken a love of close observation and a thirst for further knowledge that would ripen into the best of fruits.

CONCLUSION.

I have thus briefly touched upon some of the points that might be properly noticed under the head of planting upon school lots and the cultivation of a taste for rural ornament. The subject would bear ample enlargement, and it may be that the points here presented will lead to further thought in those who may read these pages.¹

In the presence of our rapidly wasting supplies, it must be evident to every sensible person that something should be done to economize what remains of our native forest products, and to provide by seasonable planting for future wants. It should be held as the duty and the privilege of those having charge of our public schools to set an example worthy of following by the planting of their grounds for the effect it may have upon those under instruction, aside from the amenities that they thus secure to their premises. The scholars now in their schools will in a few years be the owners of the lands around them, and since all our lands in most of the States belong to private owners, upon them will devolve whatever duties the necessities of the future may impose in the way of planting for the supply of future wants.

Respectfully yours,

FRANKLIN B. HOUGH,

Chief of Forestry Division, Department of Agriculture.

HON. JOHN EATON,

Commissioner of Education.

¹ Fuller expression of Dr. Hough's views will be found in his various reports on forestry, published by the Department of Agriculture; in the *American Journal of Forestry*, a monthly published by Robert Clarke & Co., of Cincinnati, which he edits; and in the *Elements of Forestry*, a manual, also published by Clarke & Co. — COMMISSIONER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

THE BUFALINI PRIZE.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, November 14, 1883.

The following correspondence, received from the honorable Secretary of State by the honorable Secretary of the Interior, and by him referred to this Office, is hereby published as notice to American scientists of the prize therein offered, together with the accompanying conditions.

JOHN EATON,
Commissioner.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.

THE BUFALINI PRIZE.

LEGATION OF ITALY,
New York, July 3, 1883.

Mr. SECRETARY OF STATE: The Royal Institute of Higher Studies at Florence, by a resolution adopted on the 1st of May last, declared that all persons were at liberty to compete for the prize of 5,000 francs which was offered by the celebrated scientist Maurizio Bufalini to the person presenting the best essay on the subject of the experimental method in science.

In pursuance of the instructions which I have just received from my government, I hasten herewith to transmit to Your Excellency the programme relative to the competition, begging you to be pleased to have it brought to the notice of American scientists, to the end that they may be enabled to compete for the Bufalini prize.

Thanking you in advance for the steps that you will be pleased to take in connection with this matter, I avail myself of this occasion to renew to you, Mr. Secretary, the assurance of my highest consideration.

A. DALLA VALLE,
Chargé d'Affaires of Italy.

His Excellency FREDERICK T. FRELINGHUYSEN,
Secretary of State, Washington, D. C.

ROYAL INSTITUTE FOR HIGHER PRACTICAL STUDIES AND IMPROVEMENT, AT FLORENCE.

Resolution adopted by the section of medicine and surgery of the Royal Institute for Higher Practical Studies and Improvement, at Florence.

Whereas the will of the illustrious scientist, Maurizio Bufalini, dated September 12, 1874, provided that a legacy should be left to the above named section sufficient to enable it to offer a prize to the author of the best essay on the subject named by the testator, the section has resolved:

- (1) Competition for the Bufalini prize shall be open from this 1st day of May, 1883.
- (2) The time during which essays may be presented shall expire on the 31st day of October, 1884, at 3 o'clock P. M.
- (3) The amount of the prize shall be 5,000 lire.¹
- (4) The chancellor of the section of medicine and surgery of the Institute for Higher Practical Studies and Improvement (whose address is via degli Alfani, No. 35) is officially designated to receive the essays of competitors and to give his receipt for the same.
- (5) The notice, the problem on which essays are to be written, a list of certain works, and the rules relative to the competition, which were laid down by Professor Bufalini in his will, shall be published. They are as follows:

NOTICE.

The constant experience of my long life has fully convinced me of three great truths, viz: (1) That all principles of reasoning called *a priori* are entirely false, or at any

¹ The lira = 19.3 cents; the value of the prize is therefore \$965.

rate do not lead to the discovery of other knowledge, and that the philosophy called speculative or dogmatic should therefore be regarded as impossible. (2) That only the philosophy called experimental is true, and should alone be adopted. The same is true of the method which is called by the same name. (3) That nevertheless, before my efforts in that direction, this method had not been generalized into a complete system or body of doctrine which would enable it to be more correctly understood, and which would also serve to explain complex causes and the method of reasoning about them.

Being thus persuaded I was compelled to conclude that the sciences had not yet acknowledged the true method, had not yet invariably followed the true mode of reasoning, and had always left the way open to well known and obnoxious ancient errors. From this it appears that the use of the experimental method has always met with serious difficulty, and this I discovered was due to the habit of reasoning with words whose meaning is not sufficiently determinate, as in learning language many words still have to be used which do not stand for sensible and concrete objects; all which has favored the birth and establishment of a mode of reasoning closely resembling the dogmatic.

Let the learned consider therefore whether they can pardon me for daring to appeal to them ten years after my death, and, after that, every twenty years, to solve the following

PROBLEM.

The necessity of the experimental method in arriving at the truth and the relation of all the sciences being assumed, it is required to demonstrate in a first part how far the said method is to be used in every scientific argument, and in a second part to what extent each of the sciences has availed itself thereof during the time that has elapsed since the last competition for a prize,¹ and how they may be brought to a more faithful and complete observance of the method itself.

MAURIZIO BUFALINI.²

List of the works of Maurizio Bufalini in which the subject above referred to is more particularly considered.

Instituzioni di patologia analitica. 6^a edizione di Firenze, 1846.

Prolegomini. Parte I. Edizione del 1863 in Firenze, tipografia Le Monnier.

Prolegomini. Quesiti sul metodo scientifico in appendice alle istituzioni della patologia analitica, tipografia successori Le Monnier, Firenze, 1870.

Schiarimenti sul metodo scientifico e specialmente sull' induzione. Nel giornale Lo Sperimentale, Anno XXVI, 1874.

Sommario delle più essenziali ragioni del metodo scientifico. Nella Nuova Autologia, Firenze. Marzo 1874.

Agli illustri professori della sezione di medicina e chirurgia dell' Istituto degli Studi Superiori Pratici e di Perfezionamento di Firenze ed altri.—A quelli della chimica e farmacologia insegnanti nell' arcispedale di Santa Maria Nuova—Agli medicina e chirurgia. Maurizio Bufalini, Firenze, 1874, e nello Sperimentale, Luglio 1874.

esercenti medicina e chirurgia nell' arcispedale medesimo ed altri.—Agli scolari della

¹ The subject named by Professor Bufalini in his will is to be reassigned every twenty years, which is why the distinguished professor refers to "the time that has elapsed since the last competition."

² TEMA.

Posta l'evidenza della necessità di assicurare al solo metodo sperimentale la verità e l'ordine di tutte le scienze, dimostrare in una prima parte, quanto veramente sia da usarsi in ogni scientifico argomentare il metodo suddetto, ed in una seconda parte, quanto le singolari scienze se ne siano prevalso nel tempo trascorso dall' ultimo concorso fino ad ora, e come possano esse ricoudarsi nella più fedele ed intiera osservanza del metodo medesimo.—MAURIZIO BUFALINI.

RULES.

(1) Each essay shall bear at the top some particular motto, and shall be inclosed in a sealed envelope, on the outside of which the same motto shall be written.

(2) The essay shall be written in Italian or Latin.

(3) The envelope containing the essay shall be accompanied by another sealed envelope bearing the same motto and containing a slip of paper on which shall be written the full name, the titles, and the place of residence of the author of the essay, which is inclosed in the other envelope.

(4) Each of the two parts into which the subject is divided may be treated separately or both may be discussed together, at the pleasure of the writer.

(5) The authors of dissertations relating to both parts of the subject may compete for the whole of the prize; those of dissertations which treat of a single part only, may compete for but one-half of the prize.

(6) No essays shall be accepted that are not neatly written by a single hand or that have corrections or additions the meaning of which is obscure. Corrections or additions or changes made by another hand will not be taken into account.

(7) Essays not considered worthy of the prize shall be returned by the chancellor to their authors, sealed as they were by the examiners.

(8) In case of a tie in the balloting for the award of the prize, the balloting shall not be renewed, but the prize shall be equally divided among the competitors.

(9) The president of the board of examiners, before the conclusion of the session, shall publicly announce the results of the ballots taken, after which he shall announce which essay or essays have been deemed worthy of the prize; he shall then during the same session publicly break the seal of the envelope containing the slip on which are written the name, titles, and place of residence of the author of each of the successful essays, after which the names of the authors shall be made known to the public.

(10) If none of the essays presented shall have been deemed worthy of the prize, the president of the board of examiners shall immediately so inform those present and shall announce that another competition will at once be opened, public notice of which shall afterwards be given. It shall also be announced that the envelopes which have not been unsealed, with their contents, are ready to be returned to their rightful owners.

The chancellor of the section,

VINCENZO PUCCIONI.

The president of the section of medicine and surgery,

Prof. GIORGIO PELLIZZARI.

FLORENCE, *May* 1, 1883.

An authenticated copy of the last will and testament of Prof. Maurizio Bufalini is deposited with the chancellor of the section of medicine and surgery, and may be seen by any one.

N. B.—Directors of Italian scientific, literary, and political journals are respectfully asked to give the widest possible circulation to the present document.

DEPARTMENT OF THE INTERIOR,²
BUREAU OF EDUCATION.

EDUCATION IN ITALY AND GREECE.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, December 4, 1883.

The following brief summaries of the latest educational reports received from Italy and Greece will aid in answering many questions respecting educational progress in those interesting countries.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.

EDUCATION IN ITALY AND GREECE.

STATISTICS OF EDUCATION IN ITALY IN 1881.

The latest available statistics published by the Italian Government give some interesting information respecting public instruction in that country.

Cost of education.—From these statistics it appears that only about 12,500,000 lire¹ (\$2,412,500) were expended for public instruction during the first year of the existence of the kingdom. From 1867 to 1870 the average annual expenditure was about 15,000,000. Since then the increase has been rapid, as is shown by the following figures:

Years.	Appropriations.	Years.	Appropriations.
	<i>Lire.</i>		<i>Lire.</i>
1871.....	16,300,000	1879.....	27,900,000
1872.....	17,400,000	1880.....	28,400,000
1873.....	19,200,000	1881.....	28,300,000
1874.....	19,700,000	1882.....	32,100,000
1875.....	20,500,000	1883.....	30,400,000
1876.....	20,700,000		
1877.....	21,500,000	Total.....	308,400,000
1878.....	26,000,000		

The amount at present expended for public instruction by the communes and government together is about 87,000,000 lire a year.

The Italian appropriations for education are small compared with those of other states of Europe, as is shown by the following table:

Countries.	Years.	Francs.	Countries.	Years.	Francs.
France.....	1873	41,000,000	France.....	1882	114,000,000
England.....	1873	65,000,000	England.....	1882	110,000,000
Russia.....	1873	43,000,000	Russia.....	1882	72,000,000
Belgium.....	1873	10,000,000	Belgium.....	1882	20,000,000
Italy.....	1873	19,000,000	Italy.....	1882	32,000,000

Primary instruction.—Before the unification of Italy primary instruction was only organized in Piedmont (law of 1848). The first general organic law was from November, 1859. This law makes instruction compulsory and gratuitous for all children from 6 to 12 years of age. It should be remarked, however, that the provisions of this law were not carried into execution. It should also be noted that by this law the communes were

¹ The lira = 19.3 cents.

to bear the expense of establishing new primary schools. For this reason the increase in the number of these schools was not very rapid, as is shown by the following table:

Years.	Schools.		Years.	Schools.	
	Public.	Private.		Public.	Private.
1861-'62	21, 353	7, 137	1872-'73	34, 786	7, 392
1862-'63	23, 340	6, 082	1873-'74	35, 683	7, 637
1863-'64	24, 999	6, 805	1874-'75	38, 062	8, 952
1865-'66	25, 682	5, 435	1875-'76	38, 255	9, 156
1867-'68	29, 909	6, 414	1877-'78	39, 702	7, 906
1869-'70	31, 225	7, 075	1878-'79	41, 108	7, 422
1870-'71	32, 782	6, 876	1879-'80	41, 862	-----
1871-'72	33, 556	8, 157	1880-'81	42, 510	-----

The number of scholars attending these schools was :

Years.	Public schools.		Private schools.		Total number of scholars.
	Boys.	Girls.	Boys.	Girls.	
1861-'62	527, 729	357, 423	51, 821	71, 701	1, 008, 674
1862-'63	574, 421	408, 915	52, 168	73, 720	1, 109, 224
1863-'64	597, 202	440, 627	57, 366	79, 548	1, 174, 743
1865-'66	630, 230	468, 491	56, 068	59, 081	1, 213, 870
1867-'68	806, 349	543, 717	63, 128	71, 338	1, 484, 532
1869-'70	825, 249	602, 940	64, 959	80, 211	1, 573, 359
1870-'71	843, 734	614, 850	64, 888	81, 506	1, 604, 978
1871-'72	881, 371	664, 419	79, 116	98, 041	1, 722, 947
1872-'73	913, 073	708, 846	80, 247	95, 630	1, 797, 796
1873-'74	931, 911	725, 877	77, 246	106, 946	1, 841, 980
1874-'75	949, 939	743, 861	88, 756	113, 198	1, 95, 754
1875-'76	967, 317	755, 352	87, 152	121, 796	1, 931, 617
1877-'78	1, 006, 418	824, 331	73, 509	98, 451	2, 002, 709
1878-'79	1, 048, 801	853, 479	63, 469	92, 228	2, 057, 977
1879-'80	1, 035, 715	864, 100	-----	-----	1, 899, 815
1880-'81	1, 048, 781	879, 925	-----	-----	1, 928, 706

The number of pupils nearly doubled from 1861 to 1876, but 28,000 should be deducted from the total for the annexed provinces, Rome and Venice, and the general increase of population of the kingdom should also be taken into account. During the same period (1861 to 1876) the number of primary school teachers increased from 21,050 to 37,623 in the public schools and from 7,123 to 9,462 in the private. On July 15, 1877, the law on primary instruction was passed. It went into effect in 1877-'78 in all communes of less than 5,000 persons, with at least one teacher to 1,000 inhabitants; in communes of from 5,000 to 20,000 population, with one teacher to 1,200 inhabitants; and in all more important communes with at least one teacher to 1,500 persons. In all other communes the law had to be applied gradually. At the end of the school year 1877-'78, 7,533 communes out of a total of 8,279 were complying with the law making instruction obligatory. In 1881 about 700 additional communes came under the new law. The prog-

ress which resulted from the application of this law was slower than had been expected and is shown by the following figures :

Years.	Public schools.	
	Number.	Increase.
1876.....	38,255	-----
1878.....	39,702	1,447
1879.....	41,108	1,406
1880.....	41,862	754
1881.....	42,510	648

The private schools decreased during the two years 1878 and 1879 from 9,156 to 7,422 and the total number of primary schools increased only from 47,411 to 48,530. The following table gives the number of scholars:

Years.	Schools.			
	Public.		Private.	
	Boys.	Girls.	Boys.	Girls.
1877-'78.....	1,006,418	824,331	73,509	98,451
1878-'79.....	1,048,801	853,479	63,469	92,228

These figures represent the enrolment, and not the actual attendance. The number of children who gradually absented themselves from school, especially in summer time, amounted to a third of the enrolment.

The following figures showing the number of scholars in the primary schools to 10,000 inhabitants gives some instructive information in this regard:

Before the law of 1877.....	{ 1866-'67.....	543
	{ 1875-'76.....	721
After the law of 1877.....	{ 1877-'78.....	747
	{ 1878-'79.....	768

It should be added that $7\frac{1}{2}$ per cent. of the population cannot profit by the primary schools, on account of the distance of the schools from their dwellings.

There were, in 1878-'79, 11,161 schools for adult males, 472 for females; 592 Sunday schools for males and 5,979 for females. These schools were attended by 460,818 males and 207,308 females. The census of 1881 shows that in 18 principal towns the number of persons from 12 to 18 years of age who could neither read nor write varied between 82.55 and 51.15 per cent. of the population. In 145 chief towns there were only 32 where the percentage of illiteracy was less than 30; in 13 the proportion was 80 per cent.; in 12, 70 per cent.; in 18, 60 per cent.; and the rest varied from 50 to 30 or less. There is considerable improvement in this respect in children between 6 and 12 years of age, for the proportion of them unable to read or write has declined to 72 per cent. in the pontifical states and to 20 per cent. in Lombardy. Ten and twenty years ago the percentage was as follows:

Age.	1861.	1871.
6 to 12.....	82	78 $\frac{1}{2}$
12 to 19.....	72	63 $\frac{1}{2}$
19 and above.....	73	68

The proportion of all persons over 5 years of age who could neither read nor write declined from 75 to 69 per cent. during the decade 1861 to 1871.

Classical and technical instruction in secondary schools.—Secondary classical instruction lasts eight years, the first five of which are passed in the gymnasia and the remaining three in the lycées or colleges. The number of these institutions in 1880-'81, with their enrolment, was as follows:

113 government gymnasia	12, 876
157 communal gymnasia	7, 822
57 endowed gymnasia	2, 996
230 ecclesiastical gymnasia	11, 141
144 private gymnasia	6, 289
<hr/> 701 gymnasia	<hr/> 41, 124

The number of teachers employed in these various institutions was 3,674.

The number of colleges or lycées in 1880-'81, with enrolment, was as follows:

83 government	5, 989
34 communal	1, 121
13 endowed	326
111 ecclesiastical	2, 004
57 private	1, 693
<hr/> 298	<hr/> 11, 133

The number of teachers was 1,601.

The technical schools in 1880-'81, with enrolment, were as follows:

63 government schools	6, 852
210 communal schools	11, 508
4 provincial schools	461
24 endowed schools	854
82 private schools	2, 445
<hr/> 383 schools	<hr/> 22, 120

These schools had a total teaching force of 2,704 persons.

There were also 79 technical institutes, public and private, with 6,878 enrolled students and 1,169 teachers, and 26 naval schools (merchant marine), with 816 students and 183 teachers. There were therefore in 1880-'81 a total of 1,487 secondary institutions, with 9,331 teachers and 82,071 enrolled students.

Superior and special instruction.—The 17 royal universities of Italy are those at Bologna, Cagliari, Catania, Genoa, Macerata, Messina, Modena, Naples, Padua, Palermo, Parma, Pavia, Pisa, Rome, Sassari, Sienna, and Turin. The total enrolment during the scholastic year 1880-'81 was 10,592 students. The largest numbers were enrolled at the universities of Naples and Turin, and were 2,851 and 1,651, respectively. Then come Padua with 973, Rome with 754, Bologna with 743, and Pavia with 714 students. Pisa, Genoa, and Palermo have between 500 and 600 students each, and the rest have a much smaller number. There are 4 independent universities in the Kingdom, at Camerino, Ferrara, Perugia, and Urbino, which had a total of 265 students in 1880-'81. Besides these there were 21 superior institutes, academies, and special schools, with 1,948 enrolled students. This makes a total of 12,805 enrolled students in the higher institutions of learning in Italy in the year 1880-'81.

EDUCATION IN GREECE.¹

A great stumbling block to learning is said to be the use of modern Greek in conversation and ancient Greek in official and social correspondence. Even adults find that this creates a difficulty, and for children it is especially hard to overcome. Compulsory education for children between 5 and 12 years of age is a feature of the law since 1834. Yet even the fine of 50 francs for any infringement of the law has no material effect, and it practically remains a dead letter on the statute books. The people will not pay the fine, so the officials forget to enforce the penalty. Certain studies are required by law, but theory and practice seem to differ. The law specifies the following subjects for common schools: The catechism, elementary Greek, writing, arithmetic, weights and measures, linear drawing, singing, and, "when convenient," the elements of geography, history of the country, and the elementary training most needed in natural sciences; for boys there are these additional branches: gymnastics, practical agriculture, horticulture, arboriculture, beekeeping, and silk culture; for girls, practical instruction in handiwork. In reality no instruction is given in gymnastics, at least the writer of this article has seen nothing of the kind, either in the common or higher schools. In the district schools many of the above mentioned branches are taught; in the village schools the limit is reading and writing (not very correct chirography, either), and the fundamental rules of arithmetic in addition, subtraction, multiplication, and division. After 1834 many of the schools were subdivided into schools for girls and schools for boys, yet many mixed schools existed. As the years went on the people revolted against the coeducation of the sexes, so that, by law of 1852, a separation took place and a philanthropic society took charge of educating girls. In Greece, the connecting link between the common (elementary), middle (Hellenic), and higher schools (gymnasia) is an established fact. In the Hellenic schools, which are similar in grade to the lower Gymnasien of Germany, instruction is given in ancient Greek, biblical history, ancient Greek history, with short exercises in more modern history, in geography, arithmetic, and geometry. French is taught from the second school year, while pupils fitting for the gymnasium take up Latin from the third year. The course of study in the gymnasium includes reading from Greek authors, with grammatical instruction (12 hours a week), Latin (4 hours a week), French, history, algebra, geometry, trigonometry, and mathematical geography; also, natural history, physics, psychology, logic, and religious instruction. According to the school law of 1836 German, drawing, painting, and music are also to be taught, but they do not enter into the course. In theory the Hellenic (middle) schools require a good deal of their pupils, but, on account of the scarcity of scholars, this course of study is rarely carried out. In a gymnasium the pupils are expected to be very thorough, and the requirements are considerable, but the lack here is in the culture of the teaching force. Tuition fees are the order of the day in the lower grades, but instruction is free in the middle and higher schools. In the matter of punishment a very humane course is pursued, the law forbidding corporal punishment. Unfortunately this phase of law does not seem to be appreciated by the school children, for they are reported as lacking greatly in discipline. According to official statements the illiteracy among the people, estimated on the basis of those supposed to attend the lower public schools, is as follows: In the district of Thebes, as in the Peloponnesus, the percentage of population regarded as illiterate is 90 to 95 per cent.; in other districts, 75 to 90 per cent.; and where more favorable reports are re-

¹ Professor Pio, of Denmark, in a recent number of the *Hamburger Korrespondenz*.

ceived—as in Attica—55 to 60 per cent. can neither read nor write. The contrast in the education of the sexes is quite noticeable. For instance, in Attica and Ithaca, where more than half of the men have some education, there are few districts in which more than 30 per cent. of the women are educated, while often only 1 to 2 per cent. have been instructed. As an offset to the statements of a lack of education mentioned above, reports indicate that private schools are flourishing. The philanthropic society associated in the work of providing a suitable education for girls developed many private institutions. These are laying a foundation for a higher order of culture than is found elsewhere.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

REPORT OF THE DIRECTOR

OF THE

AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

FOR THE YEAR 1882-'83.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, January 12, 1884.

The following report for the year 1882-'83 to the managing committee of the American School of Classical Studies at Athens, Greece, by Dr. William W. Goodwin, of Harvard University, its first director, is so important in its general bearings on superior classical instruction and culture that it is included among the publications of this Office.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS.

I have been intrusted during the past year with the responsible duty of establishing in Athens the American School of Classical Studies, which was founded by the Archaeological Institute of America and is supported by the contributions of fourteen of the principal colleges in the United States. As I believe that our new institution is destined to exert a most important influence on the scholarship and the culture of our whole country—an influence which will be more thoroughly appreciated as its resources increase and its sphere of action enlarges—I feel that it is proper for me, in this report of our first year's proceedings, to address myself not merely to the managing committee of the school, but also to the larger body of friends and supporters of our enterprise, upon whose kindly interest we must always greatly depend for our success.

That there was a real demand for an American school of classical studies in Athens is abundantly shown by the fact that I found in Athens, last October, no less than eight American students full of enthusiasm for work and ready to join our school. Seven of these entered as regular students of the school for the full year. These were the following:

John M. Crow, A. B. Waynesbury College, PH. D. Syracuse University.
Harold N. Fowler, A. B. Harvard University, 1880.
Paul Shorey, A. B. Harvard University, 1878, holder of the Kirkland fellowship in Harvard University.
J. R. S. Sterrett, University of Virginia, PH. D. Munich, 1880.
Franklin H. Taylor, Wesleyan University.
James R. Wheeler, A. B. University of Vermont, 1880, graduate student of Harvard University.
Frank E. Woodruff, A. B. University of Vermont, 1875, B. D. Union Theological Seminary, holder of a fellowship in the Union Theological Seminary.

During the year Mr. Woodruff was called to the professorship of sacred literature in the Andover Theological Seminary, and left Athens in March to finish his studies in Germany. The six others have completed the full year's study in accordance with the terms of our published regulations. The theses presented by these students, in conformity to our rules, will be submitted to the committee for their judgment.¹ These are upon the following subjects:

- (1) The Pnyx: by Dr. CROW, who has had the benefit of a new and careful survey of the so-called Pnyx at Athens, made by Mr. Joseph T. Clarke.
- (2) The Erechtheum: by Mr. FOWLER.
- (3) The Life, Poems, and Language of Theocritus, with specimens of a commentary: by Mr. SHOREY.
- (4) The Inscriptions discovered at Assos by the expedition of the Archaeological Institute of America: by Dr. STERRETT.
- (5) The Value of Modern Greek to the Classical Student: by Mr. TAYLOR.
- (6) The Theatre of Dionysus at Athens: by Mr. WHEELER.

Besides the regular members of the school, Dr. Louis Bevier, of the Johns Hopkins University, Baltimore, studied with us during the greater part of the school year and

¹ The theses numbered 1 and 4, in consequence of necessary delays, were not received by the director in time to be presented to the committee with this report.

took part in all the exercises with the other students. He read a paper on the Olympiæum at Athens at one of our evening meetings, which will be submitted to the committee as a part of the work of the school. If the funds of the school permit the publication of a bulletin representing the work of the first year, it is hoped that ample material for a volume will be found in these dissertations, as well as in other papers which were presented and discussed at the meetings of the school during the year.

I arrived at Athens on the 1st of October, 1882. My first care was to provide the school with a proper habitation for the year. A previous visit to Athens of a few hours on the 13th of September had shown me that it would be impossible to carry out the plan with which I had left home, of finding a furnished house which would accommodate the director's family and contain a room suitable for the meetings of the school and its library. No furnished house suitable for our purpose could be obtained in Athens at any reasonable rent; and it became necessary to hire an unfurnished house and provide the requisite furniture from our own resources. Athens is a peculiarly difficult city to buy furniture in, most of the articles which we needed being imported at great expense and often in insufficient quantities, leaving very little choice to the purchaser. By the great kindness of our friends, Rev. M. D. Kalopothakes, Rev. T. R. Sampson, and Mr. P. Xanthakes, who as residents of the city were able to give us the most efficient help, the labor of establishing ourselves in Athens was reduced to a minimum. But even with this help the process was long, perplexing, and expensive. It was fortunately convenient for the director to supply himself with many important household articles, such as carpets, curtains, and linen; so that the funds of the school were required chiefly to furnish the heavier and less portable furniture, such as tables, chairs, bookcases, beds and bedding, with china and glass. For these and other necessary household articles and for kitchen furniture, we expended about \$1,075, all of which, except about \$333, has been paid from the income of the first year.

The temporary home of the school, in which it still remains, is the upper part of a large house near the Gate of Hadrian, the last building on the west side of the *ὁδὸς Ἀμαλίας*. This contains comfortable rooms for the director and his family, and a large cheerful library for the school, in which its meetings are held and the students can do their work. The building stands on high ground, with an almost uninterrupted view on all sides except the north. From the south windows we have a magnificent view over the rolling meadow land stretching about three miles to Old Phaleron, and over the Saronic Gulf, in which lies the lofty island of Ægina, visible to us in its whole length; while beyond the sea we have the hills of Argolis in view, from the southern point of the peninsula to Mt. Arachnaion, the memorable height from which (according to Æschylus) Agamemnon's last signal fire announced the capture of Troy to Clytemnestra at Argos. On the east we have a large open area of sand, in the farther part of which stand the Corinthian columns of the temple of Olympian Zeus; and in the background is Mt. Hymettus. On the west we see the Acropolis over the low houses of Plaka, and the eastern summit of the Parthenon is just visible above the wall.

The library of the school was open for the use of the students during the whole day and evening, and it was comfortably warmed in the winter by one of the two open coal stoves which were sent from Boston for the use of the school. The library contained at the end of the year about four hundred volumes, exclusive of the periodicals and pamphlets which had accumulated during the year. Besides the books which were furnished by the appropriation of \$1,000, the library was further increased by drawing upon the appropriation of the present year to the extent of about \$260, to supply additional books which were much needed by our students. These were kindly furnished us on credit by Messrs. Macmillan & Co., of London, and Mr. G. Deuerlich, of Göttingen. We are indebted to the generosity of the Hon. Eugene Schuyler, minister of the United States at Athens, for valuable additions to our library, among which may be mentioned many important French works on antiquities and numismatics and the seventh edition of Liddell and Scott's Greek Lexicon. We received from Russell Sturgis, esq., of New York, a

complete set of the *Bulletin de Correspondance Hellénique*, published by the French School at Athens; and from the *Archæological Society of Athens* as complete a set of their *Πρακτικά* as the secretary could furnish. Professor Köhler proposes to send us the *Mittheilungen* published by the German School, beginning with the first number of 1883. The importance of the library in the work of the school cannot be overestimated; and while it should hardly be our object to collect a large and expensive library of miscellaneous books even in the department of classical philology, still less in general literature, it is indispensable to our object to make as complete a collection as possible of all works needed for reference in the study of antiquities, geography, history, and other branches which are most likely to be pursued by our students. It is fatal to thorough study to be obliged to depend on other libraries for important books of reference, although for less necessary books, or for those which are less frequently consulted, the various libraries of Athens offer ample facilities to our students. The libraries of the University of Athens, of the senate (*Bουλή*), and of the French and German schools were opened to us with the greatest liberality, and we are greatly indebted to all these for our supply of books during the first year of our existence. But our main dependence was always our own little library at home; and I feel that nothing should be allowed to interfere with the appropriation of at least \$1,000 annually for its maintenance, certainly for several years. It is greatly to be hoped that we may obtain contributions for the support of the library, apart from our annual appropriation from the funds of the school.

Each student pursued his own course of study during the year. All devoted more or less attention to modern Greek and all made studies of the topography of Athens and its neighborhood and of the antiquities and monuments. During the fine weather of the autumn excursions were made to Salamis, to the various hills and harbors of the Piræus, and to other places of historic interest. The direction which each student's work chiefly took will be seen from the theses presented.

Two evenings in each week, after the first of November, were generally devoted to meetings of the school for the reading of papers or for the discussion of classic authors or questions of antiquities, topography, or history. These meetings were often attended by many of our friends in Athens not members of the school, who showed their interest in our work by their presence at the discussions. On the whole, although the work was less systematic during this first year than it will ever be again, owing to the difficulties of becoming settled in Athens and of learning the traditions of the place and the facilities for study, and above all to our having no traditions of our own, I feel that the committee have every reason to be encouraged by the success that has attended the school in its first year.

A most gratifying circumstance has been the great interest which all classes of intelligent people of Athens, and even of the rest of Greece, have taken in the establishment of the school. The kind feeling of the Greeks towards our own country, which our interest in their struggle for freedom against the Turks awakened, has never died out. I shall never forget the truly affectionate kindness with which a cobbler at the Piræus once mended my boot in 1856, after he had refused to do it even for pay before he knew my nationality. Last April I found among the monks of Ithome one who had received a gift of clothes from a United States ship just after the Greek revolution. This traditional friendship and the interest inspired by our coming from such a distance to establish a school in Athens made our reception there particularly cordial and pleasant. It would be ungrateful in me were I to leave unmentioned the kind interest in our school which was shown by both the King and Queen of Greece, by the prime minister (Mr. Tricoupes) and many other officers of the government, and by all the cultivated and intelligent families of Athens whose society and hospitality we enjoyed. I must mention especially the distinguished explorers, Dr. and Mrs. Schliemann, whose hospitable mansion in Athens was always opened with the greatest freedom to all the members of our school. The Hon. Eugene Schuyler, minister of the United States at Athens, besides

his donations to the library already mentioned, placed us under constant obligations by his kind and watchful care for our interests throughout the year. The interest of the Government of the United States in our school was shown by an official communication received from the Secretary of State of the United States by the director in January last, inclosing one from the Hon. John Eaton, United States Commissioner of Education, appointing the director a special agent of the Bureau of Education and recommending him to the kind attention of the officials of the Kingdom of Greece. Our relations to the French and German schools in Athens have been in every respect pleasant. The liberty of using their valuable libraries and the privilege of attending the meetings of the German school, which were held once a fortnight during the winter and most of the spring, were of the greatest value to us all.

The income of the school for the first year, consisting of the contributions of the twelve colleges which then joined in its support, was \$3,000. The income for the present year from fourteen colleges will, it is hoped, be \$3,500. No income is derived from students, as no fees whatever are charged for the advantages offered by the school. It appears from the financial statement already sent to the treasurer by the director that the expenses of the school during the first year were as follows:

For books and periodicals (about)	\$1,260
For furniture and plated ware (about)	1,075
For two stoves brought from Boston (about)	50
For sundry other expenses (about)	208
For appropriation for director	1,000
In all (about)	3,593

If we deduct \$260 for books which were really bought on credit, to be paid for from this year's income, our expenses for the year were about \$3,333, that is, \$333 more than the income of the first year or \$83 more than half of the income for two years. This of course includes the extraordinary and unexpected expenses of furnishing the house in Athens. Much remains to be done before the house will be properly supplied with all that is needed by a director who does not wish to provide many articles of his own; but the future expenses on this account will be light in comparison with the past, and they can probably be distributed over several years.

It will be remembered that a very important part of the contribution of each of the colleges which join in supporting the school is the engagement to allow one of its professors leave of absence for a single year to go to Athens as director, with at least a part of his salary paid. It was hoped that by this means we might always secure for the school a competent head and that the annual change of director would not prove to be a serious impediment to the success of the school. Now, after one year's trial of this plan, and with all my own shortcomings and embarrassments vividly before my eyes, and after much careful consideration of the plans of the other schools at Athens, I am very decided in my opinion that we must have a permanent director, resident at Athens, like the directors of the French and German schools and the future director of the English school, if our school is to hold a position on a level with the others and is to accomplish work which can be compared favorably with theirs. There are certain things which a director ought to know, but which can be learned only on the spot. Besides the many matters of topography and history, there is the familiarity with the ruins of Athens, knowledge of the best plans for travelling in Greece, and acquaintance with the resources of Athens for the use of students, with her libraries and museums, with the other schools of archæology and their work, and, further, with the language of Greece. With all these each director must generally make his acquaintance after his arrival, and he can leave little of his experience for the benefit of his successor. This difficulty cannot be properly met, it seems to me, as has sometimes been suggested, by appointing a permanent secretary, or other subordinate officer, to keep up the continuity and the traditions of the school, while the real director would continue to be appointed annually and

remain for only one year. The trouble would be that such a secretary would in spite of himself be the real head of the school, at least for the beginning of each year; and it will be all the harder for the nominal director to secure his position when a man is associated with him who has all the local knowledge which students most need when they come to such a peculiarly foreign city as Athens. I feel very strongly, therefore, that it is an absolute necessity for us to have the means to establish a permanent director of our school at Athens. And a man who can be the peer of the scholars whom France and Germany have sent and England will soon send to Athens, one who will properly represent the school, not merely in our eyes but in the eyes of Europe, cannot be obtained for a less sum than would endow a professorship in one of our best colleges at home, that is, the income of \$75,000 or \$80,000. It is therefore, I think, a most urgent need of the school that we should obtain a permanent fund of at least this amount; and I cannot believe that this want will become known in our generous community without calling forth a substantial response from some of the friends of sound classical learning who have been so liberal in the past.

It is also much to be desired that our school should be freed as soon as possible from its present state of dependence on annual contributions, especially as none of these are promised for more than ten years, and some even for a shorter period. If the director's support were provided for, the other expenses of the school, including an annual appropriation for the library of \$1,000 and one for publication of \$600, would still consume the income of \$35,000 or \$40,000. We need, therefore, about \$120,000 for a permanent endowment of the school. If this were secured, an excellent investment of a portion of it could perhaps be made in a house at Athens for the permanent home of the school. Although it may appear at first that hiring a house from year to year is cheaper and more convenient, it will generally be found, in a rapidly increasing city like Athens, that both the value of land and rents are constantly advancing, while desirable house lots are becoming scarce.

Besides a permanent endowment for the school itself, it is earnestly desired that the colleges which now unite in its support should offer scholarships or fellowships to graduates who are desirous of studying at Athens. Similar scholarships founded by private individuals, and placed at the disposal of the managing committee of the school, would be most gratefully welcomed.

A school of classical studies in Athens is by no means an American idea or a new idea. The French government has supported a school in Athens for the past thirty-seven years, and the German government one for the past nine years; in these schools learned scholars of both nations are permanently maintained, valuable libraries are kept up, and students are supported, all at the expense of the governments at home. The French school occupies an elegant palace on Mt. Lycabettus, commanding a view of the whole Attic plain, the harbors and the sea, with a large and costly library; and it has one of the best scholars of France, M. Foucart, as its director; so that every visitor in Athens sees at once that the French Republic never forgets to cherish ancient arts and letters, amid all its distractions at home and abroad. The German school occupies a more modest dwelling in the city, near the University, where one of the most accomplished German scholars, Professor Köhler, and his assistants are always doing solid work which commands the attention of the learned world. This is the central home of the many German scholars who are constantly attracted to Athens, and is an offshoot of the great German Institute founded by Bunsen, Gerhard, and other famous scholars upon the Capitol of Rome in 1829. The German government not merely supports both these institutions, but also provides several students with scholarships of about \$750 a year to enable them to study in Rome or Athens. Meetings for discussion are held once a fortnight at the German school through the winter and spring, and these are opened most hospitably to our own students and to all strangers who may wish to attend them.

The English have had serious plans for a school in Athens during several years; and last June I attended an important meeting which was held at Marlborough House in

London, under the presidency of the Prince of Wales, to consider the question. Twenty-five or thirty of those best known in England as scholars or statesmen or both (including of course Mr. Gladstone) expressed themselves with great earnestness in favor of the immediate establishment of an English school in Athens; and since the meeting in London large subscriptions have been made for this purpose. A fourth school is therefore likely to be added within a year to the national schools in Athens. The third place, I rejoice to say, has already been taken by ourselves; and I feel that our good example may have done something to stimulate the activity of our friends in England.

It will be seen, therefore, that even if Athens is viewed merely as an ancient graveyard there are many enthusiastic Old Mortalities delving there most vigorously. In fact, Athens is rapidly becoming an important intellectual centre; and when she is connected by railways with the other capitals of Europe, as she surely will be within the present generation, it will suddenly be found that there is another city, on the *Ægean* shore, as important and as charming as Florence, Rome, and Naples, which cannot be omitted even in the hasty American tour of Europe.

What now is attracting so many sober-minded men to this ancient site? I cannot say ancient *city*, for the present city of Athens is hardly half a century old, and its oldest inhabitant is now an American lady, the venerable Mrs. Hill, who has seen every house in the city built since she and her husband came on their errand of enlightened charity to the desolate waste left by the Turks in 1831. If you really want a full answer to this question, I can only say, "Go to Athens and spend a winter, and see for yourselves." If this does not answer you, I cannot help you; and, if you cannot do this, I fear you will never really feel the full truth.

Of course the various national schools in Athens were established primarily to help those who are to be teachers of Greek letters and art in the higher institutions of learning at home. Now, for such persons, in whom the hopes of our future classical education so largely centre, I can conceive of no better preparation for enthusiastic work, after they have obtained the book learning commonly deemed necessary for their profession, than to spend eight months in the study of Greece herself, in viewing her temples and learning the secrets of their architecture, and in studying geography and history at once by exploring her battlefields, her lines of communication through her mountain passes, and the sites of her famous cities. A well known English scholar once said to me, "You can stand on Mt. Pentelicus and study history by the hour." So you can study history in riding over the plain of Boeotia and visiting in quick succession Orchomenos, Chæroneia, Leuctra, Plataea, and Thebes. So you can study history in making the circuit of the plain of Mantinea and in forcing your way through the rocky passes which lead to the beautiful valley of Sparta. Before you get to Sparta you will see why none of these rough stones were needed to build walls for the city; and before you leave the valley you will understand better the discipline of Læurgus, with its iron money and its black broth, and the hardihood of Leonidas and the men of Thermopylae. Taygetus, with its snowy peaks and its rugged cliffs, is still suggestive of wolves and of Spartan children sacrificed for the benefit of the race; and the famous hill of Ithome gives a new idea of Messenians and Helots, as we see the massive walls and steep precipices around which Sparta learnt her ten years' lesson that freedom was not meant for Dorians alone. Now, I believe that any scholar who should take in these object lessons, with the host of others which follow them, in a rapid journey through Greece, and then make a study of the monuments of Athens herself and of the topography of Athens and Attica, would never regret the year devoted to the pleasant work; and I believe, further, that any school or college which might hereafter employ him as its teacher of Greek would have made the best possible investment if it had paid his expenses while he was doing it. And, apart from all the purely antiquarian interest which every stone of ancient Athens awakens in the scholar, I am sure that no one can dwell in daily sight of the dark rock of the Acropolis, crowned with the stately Parthenon, meeting his eyes at every turn in the crowded

streets of the modern Athens as it met the eyes of the ancient Athenians, and become familiar with the calm beauty and dignity of this favorite home of Athena, without feeling that merely to live under its shadow is in itself an education. And no one who has once stood on the steps of the Parthenon at evening and seen the sun sink behind the hills of Salamis, with the whole landscape glowing with every shade of color from the deepest purple and crimson to the palest gold, will ever doubt that inspiration may even now be breathed in with the pure air of Attica, and that it is indeed good to look upon her blue sky, and her still bluer sea, and the delicate outlines of her hills. We too may enjoy, even in this remote age, the privilege which Euripides ascribes to the "sons of Erechtheus, happy of old, children of the blessed gods, of a land sacred and unconquered, whose food is most glorious wisdom, and who ever walk delicately through the brightest air."

All this is what almost any one, with the ordinary education of a good school or college and a common appreciation of the beauties of nature and art, would draw from a year in Greece almost without exertion. Now, our school wishes to make it possible for scholars who are competent to use its advantages to combine with all these natural privileges a year of systematic study, which will be of as great service to them in their future work as a year spent at one of the great universities of Europe. It is of course understood that our school does not propose to *teach* its students in the ordinary sense of that word; that is, it has no established courses of instruction for all to follow, nor does it expect that any two of its students will be working on exactly the same line. It presumes each student to be "competent to pursue an independent course of study at Athens under the superintendence of the director," and only graduates of colleges who are attested as thus competent are admitted. The school announces its own object thus:

The object of the American School of Classical Studies is to furnish graduates of American colleges an opportunity to study classical literature, art, and antiquity in Athens under suitable guidance, to prosecute and to aid original research in these subjects, and to coöperate with the Archaeological Institute of America, as far as it may be able, in conducting the exploration and excavation of classic sites. * * *

The director superintends personally the work of each member of the school, advising him in what direction to turn his studies and assisting him in their prosecution. He conducts no regular courses of instruction, but holds meetings of the members of the school at stated times for consultation and discussion.

We have two classes of students in view, although some young men, on coming to Athens fresh from an American college, may not at first know definitely into which of the two they will ultimately fall:

(1) One class consists of those who have a definite object in view, such as professional study of Greek architecture, or special study of Greek art or of some department of antiquities which can best be studied at Athens. For many special subjects, as monuments and inscriptions, and for topographical investigations, Attica offers material sufficient to occupy such a professional student many years, as the publications of the German Institute abundantly show. Especially if the work of the school is connected with the exploration of ancient sites, as was that of the German school with the excavations at Olympia, that of the French school with those at Delos, and (to a less extent) that of our school with those at Assos, the field for gaining archaeological knowledge at first hand will suddenly become wide and varied. Those who were fortunate enough to be members of the German school while the excavations at Olympia were going on were overwhelmed by an abundance of wealth, as the workmen unearthed statues, inscriptions, and the foundations of buildings in rapid succession, the interpretation of which often taxed their learning and their ingenuity. Those were memorable days; but there are other Olympias still buried beneath the soil of Greece, perhaps still richer in works of art and historical monuments. Of course the opportunities which will be afforded to our school to take part in such original researches must depend entirely on the liberality with which our Archæ-

ological Institute is supplied with the means of exploration. Should we ever have the good fortune to do work like that done by the Germans at Olympia (as I trust we may), our students at Athens will indeed have a rare opportunity. Even last year, although the Assos expedition had only two months of working time left after our school at Athens was established, one of our most enthusiastic students, Dr. Sterrett, went to Assos to undertake the publication of the inscriptions which had been found there. And since the work at Assos was finished, Dr. Sterrett has gone into the interior of Asia Minor to explore ancient sites and search for antiquities and inscriptions, with the distinguished young Scotch scholar, Mr. W. M. Ramsay, who was sent to Asia Minor as a fellow of Exeter College, Oxford, aided by a liberal subscription raised last year through the Society for the Promotion of Hellenic Studies. I heard from Dr. Sterrett recently that they found the places they visited rich in inscriptions and that they had already "revolutionized the map of the country." I trust that we may still derive important additions to our knowledge of geography, as well as much credit to our school, from the circumstance that Dr. Sterrett went over to Assos last spring.

(2) The other class for which our school was founded are the general students of classic antiquity, who come rather for general cultivation in Greek studies than for special research in a particular department. As in our colleges at home, these general students will always be the more numerous class at Athens, while the few specialists will do most to enlarge the bounds of science and to bring their own work and our school into notice. Now, there is a large amount of work which every classical teacher ought to do, and which can be done better in Athens and Greece than anywhere else. Apart from the study of the topography of Athens and Attica, acquaintance with the monuments, the determination of the lines of the city walls and the three walls that connected the city with the harbors, and other matters which can be studied to advantage only on the spot, there are many important passages in the Greek historians and poets which are wonderfully illustrated by the sight of the places to which they relate. No impression made by reading another's description of an historic scene is half so vivid as the testimony of one's own eyes. The battle of Salamis is never so real as when one sails through the famous straits or stands on the hill that overlooks the bay where the Greek fleet lay awaiting the Persian attack on the eventful morning which decided the fate of Athens. Among the many historical and literary questions which a residence in Greece must suggest, there will always be some which each student will wish to subject to a careful study and to make the chief object of his winter's work. And even if students of the class we are considering devote themselves to various subjects during their residence in Greece, so that no one solid result remains to testify to their year's work, it by no means follows that they have not improved their opportunities to the utmost. Every scholar will at once think of many such pieces of classical work, enough at least to occupy a student during the seven or eight months of his stay in Athens, for which no other place could be so favorable. And surely the rare opportunity of doing this part of one's study amid all the delightful associations of Athens is one for which every student will thank the founders of our school.

I have not yet mentioned a special attraction which Athens presents to the classical scholar in its literary language. I have no space to discuss at length the various dialects known as modern Greek, still less their value as languages. Whatever we may think of the expediency of restoring ancient forms or of cultivating modern ones, whether we think that the Greeks after their revolution should have cultivated their own popular tongue or should have adopted the more classic dialect which they now use as a literary language, the great fact remains for the classical student that the cultivated Greeks of Athens now have a language in which all their books and all their better newspapers are written, which is used in the official documents of the government, in the lectures of the university, and in the speeches in the senate, which is taught in all the Greek schools, and which every educated person can speak; and this language differs less from the

Greek of Xenophon, as regards the forms of the words, than that differs from the Greek of Herodotus, and less than the English of to-day differs from the English of four or five centuries ago. It may be said with truth that Plato or Demosthenes, were he to return to Athens, could read the daily papers with little difficulty, except so far as he would be puzzled by modern ideas and new forms of thought. He could certainly learn to understand the forms and the constructions by an hour's tuition.

To be able to use this form of Greek as a spoken language is an incidental advantage of the highest value to the student of Greek in Athens. It tends to keep his ancient Greek alive as a real tongue, which it must be if it is to be taught with success; that is, if it is to be taught at all. You can no more teach a dead language than you can teach a dead student. For the purposes which the classical scholar has in view, it seems to me that this higher and purer form of modern Greek, the literary language of Athens, is more useful than the less classic spoken Greek, which is the real language of the people, and which is, in fact, the only Greek which can be understood out of Athens, and even among the lower classes of the capital. A knowledge of this more popular spoken Greek, though of the greatest use and indispensable if one wishes to converse with the people at large, would be of merely the same value to the student of classic Greek as a knowledge of Italian would be to a Latin scholar. If ancient Greek were taught in our schools and colleges with the modern pronunciation, it would be quite easy for any one of our better Greek scholars to understand the language of the educated people in Athens, and after a little practice to make himself understood by them. This would be of great assistance to every one who goes to Athens to study; and if the modern pronunciation were a more practicable one—that is, one which could be used in schools without causing too much confusion in teaching by its poverty of vowel sounds and by its using only one sound (*ee*) to represent seven ancient sounds—I should feel that it would be desirable to introduce it. I do not think that the circumstance of the modern pronunciation being obviously much further from the ancient than some of our theoretical pronunciations ought to be any great objection; for I doubt whether Plato or Demosthenes would see much to choose (at least in *our* favor) between an Athenian's present pronunciation of Greek and that of a German or American professor; but I do feel that the confusion I have spoken of is a serious and perhaps a fatal objection, at least until the need of a change becomes greater than it now is. If in the future it should become a common thing (as I wish it might) for our classical scholars to study in Athens, so that the practical side of the question should be really important to a large number of our college graduates, I should feel that the advantages of connecting our ancient Greek with a living language by a common pronunciation decidedly outweighed the disadvantages which I have mentioned.

Our school at Athens represents the last and the boldest step that has been taken in improving our methods of classical education. It is often amusing to hear some well meaning people who undertake to enlighten the public about classical education talk about this as a department in which methods of teaching never change and everything is essentially musty and antiquated, while in all other departments the spirit of modern improvement reigns supreme. In point of fact, there is no study in which greater and more radical changes have been made in this country within the last generation than in this. And these changes are all in the direction of making the classic tongues more vivid and real as languages, more *alive*. Never was it more fully recognized than now, that classical study fails of its highest object if it does not give the student at least some initiation into the priceless treasures which remain to us in ancient literature and art; and that, while the study of the classic languages is one of the best forms of mental discipline, it is not *mere* discipline, like gymnastics, but is the road (and the only sure road) leading to the higher level of literature and art beyond. A mere grammatical study of Greek and Latin, with classic models used merely to illustrate our often imperfect rules, cannot be accepted as classical study at the present day. The distinguished professor of

chemistry of the University of Berlin, who has just visited us, Professor Hofmann, states the case clearly and broadly when he says:

After long and vain search, we must always come back finally to the result of centuries of experience, that the surest instrument that can be used in training the mind of youth is given us in the study of the languages, the literature, and the works of art of classical antiquity.

We have no fears that the intelligence of our scholars will lead them to any other conclusion than this, which Professor Hofmann announces as the unanimous judgment of the philosophical faculty of the University of Berlin, after ten years' trial of a plan imposed upon them by the minister of instruction against their most earnest protest, by which some students were admitted to the university without Greek and with an inadequate preparation in Latin. Classical study in this broad and comprehensive sense is likely to remain the foundation of literary culture; at least, we have no fear that it can be superseded by anything which has yet arisen to dispute its claims. But neither this nor any other study can occupy this responsible position except at the price of eternal vigilance. It must be wide awake to see that its methods are not antiquated; it must leave no stone unturned to provide its students with the best and choicest of the treasures of antiquity which are its capital. The foundation which it lays must be solid and lasting, or some better one will take its place.

It is in this spirit of progress, with the conviction that Greece herself offers to students far more in the way of instruction and inspiration than has yet been drawn from her, and that we cannot afford to be behind other nations in improving our methods and enlarging and elevating our instruction, that our institute has founded the American School of Classical Studies at Athens. We Americans need such a school even more than any other nation. Germany, France, and England are all within a few days' journey of Greece, and a trip to Athens, with an excursion to Delphi or Sparta, is within the compass of a month's vacation; and the museums of London, Paris, Berlin, and Munich are within easy reach of their students. But our students want a fixed home in Athens and a longer time for study there. They must replace the want of museums of ancient art here by visiting the great capitals of Europe on their way; and thus a successful visit to Athens is for them the work of a year.

But this very necessity of sending our students to study the treasures of Greek art in the great museums of Europe suggests a most important consideration for our people. We can never hope to make collections in our young cities to rival those of London, Paris, Rome, and Naples; but does it ever occur to us that some of the choicest works of Greek art have been discovered within the present generation and the most famous of them all within the last five years? And, further, that these very treasures were just as accessible to us as to any other nation? Why is it that the magnificent frieze of Pergamon now adorns the Royal Museum of Berlin, and not the public museum of New York, Boston, or Philadelphia? And why did German scholars have all the glory of uncovering the temples and statues at Olympia after their burial of centuries? Why were the exciting reports of these discoveries made to the eager world in the *Archæological Journal* of Berlin rather than in the *Journal of the Archæological Institute of America*? Simply because the comparatively poor government of Germany was willing to spend its money in these enterprises, while we *did not* spend ours. There was nothing whatever in our youth or our distance from the scene, still less was there any plea of poverty, which prevented us from discovering the Hermes of Praxiteles and the Nike of Pæonius, and compelling the great museums of Europe to send to us instead of to Berlin for casts and photographs of them. The real reason why Germany has this well merited honor, and why she is likely to explore many more ancient cities which still lie buried, waiting for the spade, is understood to be that one or two of the professors of Berlin have the ear of the Emperor of Germany and that of the Crown Prince, and so can obtain whatever is needed for archæological researches. Now, we have an imperial treasury here at home, which is always opened at the call of science far more liberally

than that of Germany ; and I believe that the \$200,000 which the German excavations at Olympia cost could have been obtained from our treasury quite as easily as the professors of Berlin obtained it from theirs, if the case could only have been properly presented at the time ; that is, if we had founded our school at Athens when Germany founded hers, and had thus known better what was going on in classic lands. Now we have an advanced post just where we most need it to secure the best information about work to be done and the way to do it. And I feel that we may appeal confidently to those benevolent friends of classical learning, who have often responded vigorously to her calls, to help us in this new enterprise in behalf of American scholarship, not merely by giving our school at Athens a permanent foundation, but also by supplying our Archæological Institute with the means of making further explorations in classic lands.

WILLIAM W. GOODWIN.

NOVEMBER 16, 1883.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

PRELIMINARY CIRCULAR

RESPECTING THE

EXHIBITION OF EDUCATION

AT THE

WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION.



WASHINGTON:
GOVERNMENT PRINTING OFFICE
1884.

WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION.

DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION,
Washington, D. C., May 14, 1884.

The exhibition of the conditions of education and of the improvements in the application of its principles and methods has been found to be one of the most effective aids in its recent rapid advancement. An international exhibition at the present time which does not make education prominent is a misrepresentation. The World's Industrial and Cotton Centennial Exposition, to be opened in New Orleans December 1, 1884, has recognized this truth, and offers educators of all nationalities an opportunity to illustrate the work done by them, the improvement of educational appliances and conditions, and the relation of education to the progress of mankind in industry, commerce, and all other pursuits of civilized life. The managers of the exposition have not only provided for but require that unity of exhibition which educators have desired in other world's fairs, but have not been able to secure. They have shown by their treatment of education in their preliminary announcements, by their invitations to educators, and by their appeals to this Office for its coöperation, that they reckon the improvement of schools and the promotion of general culture as among the most beneficial results to be attained by their efforts.

The educators of the United States are alive to the importance of this opportunity. The Department of Superintendence of the National Educational Association, at its meeting in February last, appointed a committee, consisting of Hon. G. J. Orr, State school commissioner, Georgia; Hon. H. Clay Armstrong, State superintendent of education, Alabama; Hon. W. O. Rogers, superintendent of schools, New Orleans, La.; Hon. Aaron Gove, superintendent of schools, Denver, Colo.; Hon. J. H. Smart, president of Purdue University, La Fayette, Ind.; Hon. T. W. Bicknell, Boston, Mass., president of the National Educational Association; and Hon. B. L. Butcher, State superintendent of free schools, West Virginia, and president of the Department of Superintendence, to coöperate with this Office in preparing for the exhibition of "the education of the United States. It is expected that this committee will meet for conference on details of plans as soon as circumstances warrant and extended announcement will then be made. On account of present impatient demands for information and a growing desire to begin the preparation of exhibits during this school year (ending June next), this Office publishes, as the first available official information since the general announcement, the accompanying communication of the Director-General of the Exposition, Maj. E. A. Burke, to the President of the United States, forwarded by him to Congress on the 6th instant, and also the list of subjects embraced in the general announcement under "Group 8: Education and Instruction, Apparatus and Processes of the Liberal Arts." Since the transmittal of Major Burke's report to Congress that body has passed a bill making a loan of \$1,000,000 to the managers of the Exposition; and the National Government has shown further interest in the success of the enterprise through the action of the President, who has issued an order for the participation in it of the Executive Departments, the Department of Agriculture, the Bureau of Education, and the Smithsonian Institution.

It may be suggested to those preparing educational material for earlier exhibitions, such as that connected with the meeting of the National Educational Association at

Madison, Wjs., and those to be held in Missouri, North Carolina, and elsewhere, that they prepare their exhibits so that they may also be included in the exhibition of education at New Orleans.

It may be further noted that the Department of Superintendence, at its meeting already referred to, considered favorably the holding of a winter meeting at New Orleans during the continuance of the exposition. It appointed a committee, consisting of Hon. M. A. Newell, State superintendent of public instruction, Maryland; Hon. W. T. Harris, LL. D., Concord, Mass.; William H. Payne, A. M., professor of the science and art of teaching, University of Michigan; Hon. Le Roy D. Brown, State commissioner of common schools, Ohio; and Hon. A. Coward, State superintendent of common schools, South Carolina, to consider the organization of a permanent and international council of education, as proposed by prominent European educators. It may seem to them expedient to effect the organization of such a council, or congress, at New Orleans the coming winter.

JOHN EATON,
Commissioner.

REPORT OF E. A. BURKE, DIRECTOR-GENERAL OF THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION, TO THE PRESIDENT OF THE UNITED STATES.

NEW ORLEANS, *April 19, 1884.*

To the President :

In behalf of the board of management of the World's Industrial and Cotton Centennial Exposition, created under act of Congress approved February 10, 1883, I have the honor to submit the following condensed statement of the operations of said board and observations touching the progress of the National and International Exposition provided for by the act. Congress required that the city named as the location for the exposition should subscribe to the amount of \$500,000. In addition to compliance with this requirement the city of New Orleans, in its corporate capacity, has donated the use of its principal park, containing 247 acres of ground, and has appropriated \$100,000.

The governor of Louisiana will recommend a liberal appropriation by the legislature of the State, which will assemble in May. Finding the sums thus provided inadequate to meet the demands for space from foreign countries, from the States and Territories, and from individual exhibitors throughout this and other countries, the board of management have called upon the citizens to increase their subscriptions to \$1,000,000, and under this call additional sums are being subscribed from week to week. The plans of the management have been in strict conformity to the act of Congress. Plans for the main building were opened to general competition.

The building is handsome and commodious, being 1,375 feet in length and 905 feet in width, affording 1,656,300 square feet of floor space, with convenient apartments attached for police, fire department, public comfort, offices, meeting rooms for various national organizations, and with a central music hall capable of seating 11,000 persons, and a machinery hall 1,375 feet in length by 250 feet in width. The main building covers 32 acres of ground. Two hundred and fifty thousand square feet of space have been reserved in the centre of the building for foreign Governments, and an equal amount for the United States Government and collective exhibits of the States and Territories.

The applications for space from foreign and United States exhibitors, eight months before the opening of the exposition, call for about 900,000 feet of exhibiting space. Hence, although this exhibition building is the largest ever erected, it is found inadequate to meet the demands.

Eleven foreign Governments have indicated their intention to participate, and I have been informed that many others have only delayed official action awaiting information as to the progress of the preparation and importance of the event. Thirty-two States and Territories have applied for space, and I am informed that the delay in other States is due to the time of assembling of their respective legislatures and to the fact that in some cases no session of the general assembly can be held until after the date fixed for the opening of the exposition. In many of such places the people of the respective counties are perfecting local organizations and raising the funds to secure a display of the resources of their State by local contribution.

The horticultural hall is said to be the largest conservatory ever erected. It is 600 feet in length, 194 feet in centre, with glass roof, a glass tower 90 feet in height, cold storage attachment for preserving fruit, and with heating apparatus. It is designed

to have an international exhibition of plants and shrubbery arranged around the sides of this building under cover and an international display of fruits extending throughout the central spaces of the building.

Mexico has consented to adorn the main centre with royal palms and choice plants from that country. The largest fruit display heretofore made was 11,000 plates. We are assured of an exhibit of 20,000 plates. A liberal premium list has been made in money and medals.

Adjoining the horticultural hall Mexico will occupy 200,000 feet of space for a garden. The Republics of Central America will occupy 250,000 feet of garden space adjoining, and an equal amount will be embellished by Florida and California. Choice grounds adjoining the conservatory have been reserved for the United States Departments and foreign horticulturists.

Provision has been made for an art gallery, to be composed of marble and stone from the quarries of the respective States and Territories and from such foreign countries as see proper to contribute specimens, but I regret to say that the means now at our disposal will not permit us to erect a building of sufficient dimensions for the accommodation of one-half the art exhibits at our command. The collections from some of the foreign countries, both of art treasures and antique relics, will be of the most interesting character, and we hope to be able to enlarge our building in such a manner as to accommodate a truly international and national art exhibit.

One hundred thousand feet of space in the main building have been designated for an agricultural hall. Forty acres of ground have been laid off for growing farms, experimental and vegetable gardens, and 40 acres of ground provided with buildings for the accommodation of live stock, poultry, birds, dogs, &c., with a half-mile stock arena, wherein sales of live stock will be permitted on stated days.

Extensive accommodations have been provided for the display of sawmills, wood working machinery, brick, tile, and other like factories in motion.

Arrangements are being perfected for an electrical or steam railway, to be operated for the accommodation of visitors, connecting with all points of interest within the grounds; arrangements are also being perfected for the extension of a trunk railroad track into the main building, by means of which exhibits from all parts of the country can be discharged within the building and visitors by rail can be deposited near the entrance.

A wharf adjoining the exposition grounds will be provided for the accommodation of exhibits and visitors arriving by steamship or steamboat.

The grounds will be embellished with six lakes and generous collections of evergreens from the United States and the Latin American countries, presenting groves of cedar, pine, pomegranate, magnolia, lemon, palm, orange, cocoanut, banana, &c.

The railroads have responded to our request for low rates on freight and passengers in the most generous manner. One hundred and sixty lines of railroads have agreed to a maximum rate on passengers of 1 cent per mile, and the excursion rate will frequently be as low as one-half and three-quarters of a cent per mile.

The facilities and arrangements for bringing the people of the United States and Canada to this exposition are both systematic and extensive.

Suitable space has been set aside and steps have been taken by the board for the organization of a department of woman's work, under the direction of leading ladies interested in opening to the women of our country an opportunity to occupy independent positions in the economy and industries of the world.

Extensive preparations have been made for a national educational display, for which we have the indorsement of the National Educational Association, composed of State and city superintendents, and the cordial coöperation of the Commissioner of Education. No subject claims greater attention on the part of our people, and the effect of this school of instruction will be to impart a healthy impulse to the cause of education and a better knowledge of methods. Already local educational societies are being organized throughout the State of Louisiana, and I am sure that the exposition will secure for the cause of education a more liberal provision from all of the backward States.

It is the desire of the management to construct a building within which may be grouped the exhibits of the respective Departments of the United States Government and the collective exhibits of the natural resources of all the States and Territories.

Aside from the manifest benefits accruing to the whole country from a better understanding between the representatives of the arts and sciences, agriculture, manufactures, and commerce, we may rejoice at the happy results flowing from an intermingling of the people of America in a grand national reunion.

The Centennial celebration at Philadelphia promoted kinder relations between all the people, stimulated the pride and interest of all citizens in the national welfare, and awakened an interest in industrial development which has found eloquent expression through the expositions of Boston, Atlanta, Louisville, Cincinnati, St. Louis, Chicago, and Denver.

We hope and believe that the good work thus begun at Philadelphia may be consummated at New Orleans: that the whole people may there celebrate the end of sectional acerbity and proclaim a new era of fraternal feeling and industrial progress.

Time, place, and circumstances combine to render this a fitting occasion for presenting to the world our wondrous resources, and to invoke the presence of foreign nations as witnesses of the unity of our people and the strength of our institutions.

Very respectfully,

E. A. BURKE,
Director-General.

LETTER OF DIRECTOR-GENERAL BURKE TO COMMISSIONER EATON.

WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION,
WASHINGTON, D. C., May 17, 1884.

SIR: Your request for any further data touching the preparation for the World's Industrial and Cotton Centennial Exposition is received.

In addition to my report to the President I beg to say that the progress in all departments is very rapid and encouraging, and I would respectfully submit several items which may be of interest to you and the educators of the country.

Many people wonder how a large attendance can be secured to an exhibition of this character in New Orleans, so far from the centre of the population of the United States. This centre of population, it will be noticed, is almost directly north of us, and I have made computations like the following which may show the basis on which our expectations rest:

(1) The adult population of the ten States contiguous to New Orleans is as follows:

	Adults.
Texas	689,852
Louisiana	431,339
Mississippi	476,866
Arkansas	343,151
Alabama	541,016
Florida	119,610
Georgia	664,405
South Carolina	426,647
North Carolina	620,731
Tennessee	674,252
Total	4,987,869

Should 25 per cent. of these visit the exposition there would be 1,246,967 visitors, and if we should assume that one-half of the visitors from these States would enter twice there would be 1,870,450.

(2) Take the twelve Middle and Western States having close rail and water communication with New Orleans, namely:

	Adults.
Kentucky	743,787
Ohio	1,629,447
Indiana	961,597
Illinois	1,506,272
Missouri	1,006,989
Michigan	860,007
Wisconsin	640,078
Minnesota	374,536
Iowa	773,905
Dakota	75,714
Nebraska	218,348
Kansas	467,841
Total	9,258,521

Assuming that 5 per cent. of these adults visit the exposition once, the visitors from these States would reach 462,926.

(3) Take the following eleven States and Territories, giving a total of 1,006,420 adults, and should 5 per cent. attend they would furnish 50,321 visitors:

	Adults.
New Mexico	59,826
Arizona	26,200
California	499,825
Oregon	90,477

	Adults.
Washington Territory.....	40, 167
Colorado.....	127, 273
Utah.....	61, 639
Nevada.....	41, 605
Idaho.....	19, 311
Montana.....	26, 692
Wyoming.....	13, 405

Total 1, 006, 420

(4.) Turning to the following thirteen States, having a total adult population of 9,668,627, and estimating that 2 per cent. of these visit the exposition, this attendance would aggregate 193,373:

	Adults.
Virginia.....	692, 836
West Virginia.....	273, 580
Maryland.....	471, 805
Delaware.....	75, 690
Pennsylvania.....	2, 200, 115
New Jersey.....	609, 657
New York.....	2, 868, 207
Connecticut.....	365, 918
Massachusetts.....	1, 063, 710
Rhode Island.....	162, 743
Vermont.....	192, 134
New Hampshire.....	216, 154
Maine.....	377, 620
District of Columbia.....	98, 458

Total 9, 668, 627

All will admit that these are moderate estimates and be inclined to a broader basis and one more consistent with the scope of the enterprise, which is that of a national and international exposition, with all the States and Territories interested.

Again I may call attention to transportation. All are familiar with the facilities of water communication with New Orleans, by ocean, gulf, and river. It may be added that before the opening of the exposition we shall have six railroads terminating in the city, two on the west and four on the east side of the river. Another important assurance of a large attendance is the low transportation rates already secured. These low rates, already secured by written agreements with railroad companies extending over the United States and into Canada, must exert a great influence in nationalizing the exposition.

The rate of 1 cent per mile will make the fare from—

Halifax.....	\$22 91	St. Paul.....	\$12 91
Montreal, Canada.....	17 14	Detroit.....	10 87
Boston.....	15 65	Chicago.....	9 15
New York.....	13 31	Cincinnati.....	8 25
Philadelphia.....	12 41	Louisville.....	7 41
Baltimore.....	11 43	Portland, Oreg.....	32 02
Washington.....	11 03	San Francisco.....	24 49
Richmond.....	10 45	Denver, Colo.....	15 20
Winnipeg, Manitoba.....	17 45	St. Louis.....	6 98

Proportionately low rates are made for all of the ten States contiguous to New Orleans, and reduced rates for special excursions.

The following note will give the latest information in reference to the progress of the work on the buildings:

"NEW ORLEANS, May 10, 1884.

"E. A. BURKE, *Director-General* :

"Notwithstanding the inclement weather, during the week 400,000 feet of lumber have been put in position in the main building. Seven hundred thousand feet were received. The framing of the outside section is complete. The Saint Charles street side and two-thirds of the frame elevation is sided in. The cornices are under construction. When these three are complete it only remains to set the principal trusses, of which four hundred are ready for position. The roofer has finished 80,000 feet. The outside walls are ready for the painter, who begins Monday. Glazing begins next week. Nearly six hundred men was the average during the week. The framing for Horticultural Hall is nearly complete and in position, except the large arches, which will be placed next week. The sash contract for Horticultural Hall has been awarded Warren Bros., Nashville. The glass for this building is en route.

"RICHARD NIXON, *Secretary*."

I may further add in regard to business methods that all contracts have been made on a strict business basis after public advertisement. Contract for glazing made, St. Louis; sash, Milwaukee; roofing Cincinnati; bronze ornaments, Salem, Ohio; 5,000 kegs of nails, Pittsburgh; 5,000 boxes of glass, Philadelphia; Horticultural Hall, New York City; sash Horticultural Hall, Nashville, Tenn.

The construction is under the supervision of competent architects, and every detail of expense is scrutinized by a building committee of the management.

Part of the buildings at Philadelphia were permanent and all of them were designed to comport with the sentiment of national pride then celebrated.

The centennial of cotton being commemorative of the first shipment from America of an industrial factor in the world's progress may be celebrated with less expense and display, notwithstanding the fact that it clothes a majority of the peoples of the world and has grown in production in America from six bags for export in 1784, when the world's supply was 11,250,000 pounds, in one hundred years to 3,405,070,410 pounds, or 85 per cent. of the world's crop.

As the World's Exposition at New Orleans owes its dimensions to the Centennial, it is proper that we should profit by its experience and that of other expositions in respect to grouping displays and securing results on limited expense.

I have the honor to be, very respectfully, your obedient servant,

E. A. BURKE,
Director-General.

Hon. JOHN EATON,
United States Commissioner of Education.

OFFICERS OF THE EXPOSITION.

BOARD OF MANAGEMENT.

Edmund Richardson, president, is the largest cotton planter and cotton factor in the world. Estimated worth, \$10,000,000.

Albert Baldwin, of Louisiana, vice-president, is president of the New Orleans National Bank; of the firm of A. Baldwin & Co.; president New Orleans Water Works Company.

William B. Schmidt, of Louisiana, of firm of Schmidt & Zeigler, one of the largest produce houses in the United States.

Governor R. M. Patton, of Alabama, ex-governor of Alabama, member of Centennial Commission.

Hon. Thomas Hardeman, jr., member of Congress, member of Centennial Commission.

Hon. Duncan F. Kenner, Louisiana, president New Orleans Gas Company, ex-member of tariff commission.

Jules C. Denis, Louisiana, president New Orleans Cotton Press Association.

Simon Hershheim, Louisiana, firm of S. Hershheim & Brother, largest tobacco manufacturers in the South.

Samuel H. Buck, Louisiana, cotton firm of S. H. Buck & Co., New Orleans, Henry Heintz & Co., New York.

John V. Moore, Louisiana, firm of Bickham & Moore, large cotton factors.

E. M. Hudson, Louisiana, lawyer.

G. A. Breaux, Louisiana, lawyer.

F. C. Morehead, Mississippi, president National Cotton Planters' Association of America.

ADVISORY FINANCE COMMITTEE.

Hon. W. J. Behan, mayor New Orleans, of firm of Zuberbier & Behan, large produce house; Joseph H. Oglesby, president Louisiana National Bank; Robert S. Howard, president Chamber of Commerce, New Orleans; A. J. Gomila, firm Gordon & Gomila, grain dealers; C. M. Sorla, president New Orleans Sanitary and Fertilizing Company, treasurer—died a few days ago.

EXECUTIVE OFFICERS.

E. A. Burke, director-general, State treasurer of Louisiana and manager Times-Democrat, and Samuel Mullen, secretary and chief of installation.

DEPARTMENT OF HORTICULTURE.

This is under the supervision of the committee of the Mississippi Valley Horticultural Society: Parker Earle, of Illinois; P. J. Berckmans, of Georgia; and Charles

W. Garfield, of Michigan. Parker Earle, Illinois, chief of department; Prof. W. H. Ragan, Indiana, superintendent of pomology; Prof. S. M. Tracy, Missouri, superintendent of plants and trees; Hon. P. J. Berckmans, Georgia, foreign commissioner.

Appointments to all positions are made with reference to fitness and with a view of imparting a national character to the enterprise.

CLASSIFICATION OF EDUCATIONAL EXHIBITS—GROUP 8.

[Extract from general announcement.]

CLASS 801.—*Education of children, primary instruction, instruction of adults.*

Plans and models of infant schools and Kindergärten, orphan asylums and nurseries; system, management, and furniture of such establishments; appliances for instruction suitable for the physical, moral, and intellectual training of the child previous to its entering school.

Plans and models of scholastic establishments for town and country; system of management and furniture for these establishments; appliances for instruction: books, maps, charts, apparatus, and models.

Plans and models of scholastic establishments for adult and professional instruction; system of management and furniture of these establishments; appliances for adult and professional instruction.

Appliances for the elementary teaching of music, singing, foreign languages, book-keeping, political economy, practical agriculture and horticulture, technology, and drawing.

Appliances adapted to the instruction of the blind and of deaf-mutes.

Specimens of the work of pupils of both sexes.

Libraries and publications.

CLASS 802.—*Organization and appliances for secondary instruction.*

Plans and models of establishments for secondary instruction: lyceums, grammar schools, colleges, industrial and commercial schools; arrangement and furniture of such establishments.

Collections: classical works, maps, and globes.

Appliances for technological and scientific instruction and for teaching the fine arts, drawing, music, and singing.

Apparatus and methods for instruction in gymnastics, fencing, and military exercises.

Apparatus and methods for instruction in telegraphy, phonography, and stenography.

CLASS 803.—*Organization, methods, and appliances for superior instruction.*

Plans and models of academies, universities, medical schools, practical schools, technical and mechanical schools, schools of agriculture, observatories, scientific museums, amphitheatres, lecture rooms, laboratories for instruction and research.

Furniture and arrangements of such establishments.

Apparatus, collections, and appliances intended for higher instruction and scientific research.

Special exhibitions of learned, technical, agricultural, mechanical, commercial, and industrial societies and institutions, scientific expeditions.

CLASS 804.—*Printing and books.*

Specimens of typography; autographic proofs; lithographic proofs, black or colored; proofs of engravings.

New books and new editions of books already known; collections of works forming special libraries; periodical publications, drawings, atlases, and albums.

CLASS 805.—*Stationery, book binding, painting, and drawing material.*

Paper, card, and pasteboard; inks, chalks, pens, pencils, pastels; all things necessary for writing desks and offices: inkstands, copying presses, letter scales, &c.

Objects made of paper: lamp shades, lanterns, flowerpot covers.

Registers, copybooks, albums, account books, memorandum books; bindings, loose covers for books, cases, &c.

Various products used in water color painting and tinting; colors in cakes; pastels, bladders, tubes, and shells; instruments and artists' stationery.

Apparatus for the use of painters, draughtsmen, engravers, and modellers.

CLASS 806.—*General application of the arts of drawing and modelling.*

Designs for industrial purposes; designs obtained, reproduced, or reduced by mechanical processes.

Decorative paintings, lithographs, chromo-lithographs, or engravings for industrial purposes.

Models and small articulated wooden models of figures, ornaments, &c.

Carvings, cameos, seals, and various objects decorated with engravings; objects modelled for industrial purposes, produced by mechanical processes, reductions; photo-sculpture, &c., casts.

CLASS 807.—*Photographic proofs and apparatus.*

Photographs on paper, glass, wood, stuffs, and enamel; heliographic engravings; lithographic proofs; photo-lithographic proofs, photographic stereotypes, stereoscopic proofs, stereoscopes; enlarged photographs; color photographs.

Instruments, apparatus, and chemicals necessary for photography.

Materials and appliances used in photographic studios.

CLASS 808.—*Musical instruments.*

Non-metallic wind instruments, with common mouth-pieces, with reeds, with or without air reservoirs.

Metallic wind instruments, simple, with lengthening pieces, with slides, with piston, with keys, with reeds; wind instruments with key boards, organs, accordions, &c.

Stringed instruments played with the fingers, or the bow, without key boards.

Stringed instruments, with key-boards, pianos, &c; instruments played by percussion or friction; automaton instruments, barrel organs, bird organs; separate parts of musical instruments, and orchestral appliances.

CLASS 809.—*Medicine, hygiene, and public relief.*

Appliances, instruments, and apparatus requisite for anatomical and histological work.

Plastic anatomical models.

Instruments of medical research.

Apparatus and instruments for dressing wounds and for simple surgery, general and local; anæsthetic apparatus.

Surgical instruments grouped according to their purposes; instruments for amputations, resection.

Special instruments: obstetrics, ovariectomy, urinary channels, ophthalmology, dentistry, &c.; electro-therapeutic apparatus.

Apparatus for plastic and mechanical prothesis.

Orthopedic apparatus.

Trusses, artificial limbs.

Apparatus for restoring persons apparently drowned or suffocated.

Baths and hydro-therapeutic apparatus, gymnastic apparatus for medical and hygienic purposes.

Plans and models of hospitals, various asylums, houses of refuge, almshouses, lunatic asylums; arrangements and furniture for such establishments.

Various apparatus for infirm persons, invalids, and lunatics.

Accessory objects for the medical, surgical, and pharmaceutical services in hospitals or infirmaries.

Chests and cases of instruments and medicines for military and naval surgeons; means and apparatus for succoring the wounded on the battlefield; civil and military ambulances.

Appliances, instruments, apparatus, and all things requisite for veterinary surgery.

CLASS 810.—*Mathematical and philosophical instruments.*

Apparatus and instruments used for mathematical purposes.

Apparatus and instruments illustrating practical geometry, land surveying, topography, and geodesy; compasses, calculating machines, levels, mariners' compasses, barometers.

Apparatus and instruments for measurement, verniers, micrometric screws, dividing machines, scales for scientific uses, &c.

Optical instruments, astronomical instruments.

Physical and meteorological instruments.

Instruments and apparatus requisite for laboratories and observatories.
 Weights and measures of various countries.
 Coins and medals.

CLASS 811.—*Maps and geographical and cosmographical apparatus.*

Topographical, geographical, geological, hydrographical, and astronomical maps, atlases, &c.

Physical maps of every kind; plans in relief.

Terrestrial and celestial globes and spheres.

Statistical works and tables.

Tables and ephemerides for the use of astronomers and sailors.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

©

BUILDING

FOR THE

Education -

CHILDREN IN THE SOUTH.

DEPARTMENT OF THE INTERIOR,

BUREAU OF EDUCATION,

Washington, December, 1884.

The educational labors of Rev. A. D. ^{*May*} Mayo in different parts of the country are among those which have proved most effective and have been most widely appreciated. His addresses on education in the South during the last four years have been most beneficial in reviving the interests of education in that section, and have been called for there and wherever there is an interest in the success of the cause in that portion of the country. The accompanying is one of Mr. Mayo's most recent and comprehensive addresses, and I have deemed it expedient to extend the sphere of its usefulness by distributing it as one of the publications of this Office, and thereby answering many demands.

JOHN EATON,

Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1884.

BUILDING FOR THE CHILDREN IN THE SOUTH.

I purpose, under the title "Building for the Children in the South," to give the results of a four years' careful observation through the States beyond the Potomac and the Ohio concerning the most practical and effective way of establishing

THE AMERICAN SYSTEM OF EDUCATION.

By the American system of education, I mean not one kind of schools exclusively, but all good schooling that has been found valuable in our country. The American system of education means, first and foremost, the free common school for all children, supported by public taxation, administered by experts who are chosen by the people (in public education, as in government, the final court of appeal in this Republic); the free secondary, normal, technical, and higher education, held as a matter of undoubted public right, to be exercised in every State according to a high educational expediency, of which the people are the final judge, both elementary and superior public schools being kept as near the people in their local capacity as is consistent with efficient administration: even State supervision being confined to things that are general and essential, and national aid invited only at the most critical points, with the sole purpose to stimulate local effort, with no assumption of national supervision or control.

Of course, public education, thus defined, has its general function in the elementary training of mind, discipline of character, and imparting of common information which every wise man knows are essential to the humblest citizen and the loftiest statesman alike.

Of the six millions of American children and youth actually in daily attendance and the ten millions loosely enrolled in public and the three hundred thousand in private schools, nine-tenths will certainly turn their backs upon the school-house door as early as the age of fourteen. The first and ever-present concern in the American system is to do the best thing possible for these millions of children whose average school life to-day in the East does not exceed six, in the West five, or in the South three full school years. In the secondary, higher, industrial, and normal departments, which deal with the few hundred thousand youth in training for educational and social leadership, the common school has its right, which the people have unmistakably confirmed in every American State. But, in this upper region of education, the people invite the coöperation of every effective school. There is ample field for the display of individual genius, of corporate enterprise, of home and neighborhood training. And here the church, of every communion, has a field of operation so broad and exacting that it may well limit its efforts to what it can never half include and provoke no conflict with the people on that field where the people are bound to have their way, whoever goes to the wall: the maintenance, at public expense, of the free elementary school, open to every child, unsectarian in religion though profoundly moral and religious in the grain, unpartisan in politics, knowing no distinction of race or sex or social condition, the people's university of American citizenship for every American child.

More and more is it coming to be understood by all competent and patriotic thinkers that there is no necessary conflict of interests between these different methods of achieving the great result, since the most exclusive private or parochial school in our country must finally adjust itself to the conditions of our peculiar American life. And it will be a national calamity if, in the face of the invading host of illiteracy now marching in solid rank to capture the public life of every American city and State, the champions of the various departments of school life permit themselves to be drawn into a side quarrel that shall for a moment divert the attention of the people from the one Ameri-

can question that towers immeasurably above all present issues of church and state: What shall we do with that American barbarism which, disguised under any deceptive title, is the same hateful thing, in New Orleans or in Boston, in the wilds of the mountains or the slums of the metropolis, in the blanket of the cowboy or under the dress coat of the senator, the implacable foe of everything which every true American holds essential to the existence of the foremost Republic in the world?

I propose to tell how, under the present conditions, the whole people of the South, within the present generation, can fairly and firmly place on the ground this American system of education; for I hold that if the people of these sixteen States, with all the help that Providence may vouchsafe, in a long generation, can establish their final system of education, which shall be developed as the years go on, it will have done the greatest work for the children ever yet accomplished in Christendom. And in this "Building for the Children" I do not appear as an outside architect, flourishing an ideal plan or insisting upon any local excellence of home or foreign celebrity. Indeed, *I shall speak of nothing which has not been actually tried, with complete success, under average conditions, in some part of the Southland.* So my discourse will only be an honest effort to voice the achievements of southern school men comparing notes and cheering each other around the corner of the mighty structure now rising under their hands. I only presume to wield the baton of the orchestra while it plays an overture which is but a series of variations on this one theme, every strain and note caught and fixed in the score as it has floated in from the solitary music breathed into the ear of some little child.

THE AWAKENING OF THE PEOPLE.

The first condition of success in our Southern States is a great and general awakening of all classes of the southern people to the appalling dangers of the illiteracy revealed, though half concealed, by the startling figures of the national census of 1880; for, until the whole people of the South honestly face this condition, there can be no general or very effective development of educational reform. The superior class of the southern people, during the past fifteen years, under circumstances that would have appalled any but an American people, have put in operation, in every State, a sufficient system of public schools and have reconstructed and enlarged their old system of the secondary and higher education. And I say here, if need be in the face of disparagement from over the line, that no body of superior people, so few in numbers, so overwhelmed in the work of rebuilding society from the wreck of civil war, has anywhere made an effort so heroic, with such a hopeful outlook, as this people of whom I speak. This year the sixteen States, once known as southern, will spend not less than fifteen millions of dollars upon the education of their children, and in every State there will be a positive gain in every department of educational life.

But everybody knows that this is only the beginning, and is, at best, so painfully inadequate to compass the result that it were well to waste no time in congratulations, but press onward to the more difficult work of *a great awakening of the whole people of the South.* For here is the cause of the imperfect working, sometimes the discouraging failure, of the best plans of "building for the children." In every community there are men of wealth and influence not yet really awakened to this mighty necessity of the people. There are too many reasonably prosperous and respectable parents only concerned for their own children, not even intelligently informed of their demands. And there is the mighty army of those to whom education is yet only a vague name—at best a name to charm with—who either care nothing for the school or abuse it by ignorant interference with everything wisely done therein. Now, in Europe, the method of dealing with such a situation would be for a centralized government to mature a plan, enact a law, place the expert in the school room and the policeman at the father's elbow, and enforce such elementary instruction as it should deem expedient for a state governed by itself. But I need not say this is not the American, especially is not the Southern American, way in

which any good thing can be done. Nowhere in our country has a group of eminent people so great influence for good as still in the South; but, after all, its power is only moral and its implement is only agitation. If anybody in those States is deluding himself with the fancy that an effective system of schools for the masses can, in any way, be forced upon, smuggled into, or insinuated among the people without their full consent and hearty coöperation, his disenchantment is only a question of time. Anybody can lead the horse to water, but all the world can't force the horse to drink unless he is dry. Only when this great mass of ignorance and indifference at the bottom of every State is agitated, upheaved, and moved to its deepest depths, can anything effective be accomplished in such a mighty work as I outline. Until this is done our southern school life, from the plantation primary to the University of Virginia, will be a vessel tossed on the stormy waves of a treacherous sea. As this is accomplished, all schools will improve, superior teachers will come into demand, and, in a thousand ways now deemed impossible, money will flow in to help the building rise towards heaven.

This great awakening cannot be achieved, to any large extent, by laborers from without, but is the proper work of the whole superior class at home. Every State has its own favorite way of raising a popular breeze. Every popular device not absolutely unsuited to the case should be brought into requisition for the next ten years to arouse the people. The leading press of every Southern State is now doing splendid service, and only needs to be told to keep on doing the same thing, a little harder, every week. Every county, village, secular, and religious newspaper should be "roped in" and made to blaze with the best columns that the ablest friend of the children can indite. The pulpit should be summoned to speak out in unmistakable tones for that general enlightenment, without which every church becomes a dark cave of superstition, where contentious Christians squabble over dry bones of non-essentials, knowing not the light of that love which is the "fulfilling of the law." Every candidate for public office, from President down to policeman, should be compelled to face the people and tell "what he knows about" education. It will be "mighty" convenient, twenty years hence, for the young lawyers and ambitious young men of the South to be able to pull out of their pockets a "ringing speech" in behalf of the boys and girls who will then pass in the ballots that decide their political fate. And if great statesmen pose and ponder in uncertainty, and mighty doctors have no opinions, and the stars of fashion "have no use" for themes so commonplace as education in their drawing rooms, then let every earnest man and woman, every eager school boy and girl come to the front to plead, "in season and out of season," for the children. And if all other devices fail, perhaps the Lord of Light will inspire even gouty, grizzly, ragged old Uncle Remus to climb the nearest rail fence and give his last shout, "*God bress de little children in de schools.*"

I know of what I speak when I say that the inward ear of the South is now awaiting this mighty call, all ready to respond. Why, even I, a stranger from the far-off land of snowdrifts and east wind, a man of whom nobody had heard, with only a hundred dollars in my pocket and nothing in my carpet-bag but the new education, have been welcomed through the length and breadth of the great Southern Empire in a way almost unheard of in the annals of American educational life. I have found no crowd of colored folk so humble that they did not hearken like quiet children while I have talked of the blessings of education. The most frisky colony of small boys on the front seat of the opera-house becomes my most receptive audience as soon as they find out I am talking for them. The wisest of southern men come to find out if I have any key to unlock any educational gate now closed. The best people in a hundred villages tramp through winter mud and storm to encourage my familiar talk. The only drawback to my ministry is the fact that I know so little of what I speak; am a man of sixty, who lost my constitution forty years ago and am now living on the few remaining by-laws; cannot be in a hundred places at once, correspond with every teacher, and be the friend of every smart boy and darling little girl between the Potomac and the Rio Grande. I go to a town of ten thousand people, and find the largest assembly hall thrown open, at noon-

day, crowded with school children and their teachers ; the gallery a rainbow of pretty girls from the neighboring academy ; the leading men of the city on the platform ; all hungry and thirsty for the gospel according to the children. I am invited to an educational barbecue, where, after the mighty roast is consumed, the people gather in solid mass around the most convenient stump, and close my hour of talk with a resolve to "go the whole hog" for education. I stand in a college chapel, twenty years ago a hospital and a fortress on the battleground in the rear of Vicksburg, the old port holes yet remaining in its dilapidated window shutters, the house crowded with the young people of two great schools, the sons and daughters of the men we were fighting then, now cheering every patriotic word as lustily as a music hall full of Boston boys and girls. Now if I, a stranger and nobody in particular, can do these things, what cannot the foremost men of the South, in this home of eloquence, what cannot these women before whose social power we all doff our hats, achieve, if once moved by the spirit of the Lord, as workers in this great revival for the awakening of the people in the supreme cause of "building for the children?" Surely, a people so magnetic, susceptible, enthusiastic, and irresistible as this, one need not entreat to come forth once more in its might in behalf of those who are dearer than life. The country wants the South not otherwise than as God made it and the providential schooling of the past has left it, and only demands that its people shall give themselves, just as they are, in their own best way, to this glorious crusade for light and love. Let South Carolina go on "eating fire," only follow her splendid schoolmaster, Governor Thomson, eating fire in behalf of education. Let the whole South become "solid" for the children, and it shall become the corner "stone that cannot be broken," on which shall rise the temple of liberty seen in vision by the fathers, still the dearest hope of all her worthy daughters and patriotic sons.

LOCAL TAXATION FOR EDUCATION.

The second condition of success in "building for the children" is *to thoroughly arouse and inform the public mind on the radical importance of general local taxation for the support of schools.* The average man always finds it difficult to take up one good thing without dropping another. Our Southern States, for the next generation, need every agency for the support of schools, individual, corporate, local, and State, with all the aid that the National Government can be induced to give. But it is very important that the people should know *where the real pinch must finally come, and who can justly be held responsible for the success or failure of their new education.* A community that buttons up its own pocket and waits for private beneficence, State or national aid, to educate its children, will certainly be disappointed and remain in ignorance. So, whatever may be our individual opinion on the supplementary aids for the public school, all thoughtful men must agree in this, that *the burden must finally be shouldered by the community whose children are taught in the schools.*

I know the uncertain ground on which I tread when I press home this point of local taxation. One of the most painful signs of ignorance and selfishness in public affairs is the prevalence of the notion that taxation, at best, is disguised despotism and the community that gets off with the least is most to be congratulated. The most fruitful field for the demagogue is a community demoralized by this fallacy, for he has only to raise the cry of "reduction of taxes" to carry a majority of deluded people, who, to save on the tax bill, will put the knife to the throat of every sacred interest and willingly drift back to barbarism. *The poorest speculation in financial affairs is to knock out the brains of a community to save money.* The American idea is that taxation is a voluntary assessment of the people, according to their ability, to pay for things indispensable to the existence and progress of the community. And wisdom in public finance consists in taxing most generously for the most radical public necessity. The State or community that taxes bravely and amply for public education will find itself more and more relieved from the thousand perils of public dishonesty, public corruption, and the hateful charge for crime

and pauperism, and the manifold curses that, like a flock of buzzards, hover over an ignorant people.

Whatever may be our theory of public finance, it must be evident that *the one place where local taxation can be most forcibly urged is in behalf of the children.* All men give money freely for what they love best; and surely the school tax should have in it most of the heart and mind of the people. There may be reasonable doubt concerning the outcome of expenditure for many objects of public concern, but no competent man for a moment will question the wisdom of the most generous investment in that education which is the development of power and the training of every kind of ability that will insure the highest prosperity of every sort in the years to come; for public money wisely expended in a good school is money loaned to the one creditor who always pays, who inherits what we must leave, to whose charge must be committed everything for which men toil, suffer, and fight in this world. The real treasury of every commonwealth, of any city or county therein, is the child. Every thing, at last, depends on our success in making him intelligent, industrious, refined, and good. The character of a town, a county, a generation hence, is the character we pay for by what we give to the upper story of the child to-day. To leave him in mental and moral darkness, ignorant, superstitious, brutal, quarrelsome, and shut up to his own little narrow life, is the surest way on earth to blight the community to which he belongs. So every dollar wisely expended on the child is "treasure laid up in heaven," and heaven always pays compound interest, while hell was repudiation and bankruptcy from the beginning. Whatever may be left undone by Nation or States, no community that understands its own interest will evade or resist the utmost possible sacrifice for that public education which pays everybody as no other outlay does in this world. And the men who should lead in this good work should be those whom God has blessed with abundant means. The only safety for prosperity is found where the mass of the people is competent to understand the relations of capital and labor. Communism is the pit that yawns below every state whose masses are groping through the perilous labyrinth of mental confusion and labor without brains. Of all classes in our country, the wealthy class can least afford to advocate a narrow and selfish policy in public education.

And, further, we must insist that justice and interest alike demand the most generous and persistent expenditure for education in the very lowest strata of society. There is little danger that the children of the well-to-do and superior class will not enjoy the best opportunities; but the one class no state can afford to neglect is that for which the majority cares little, and which, so often, has no wise regard for itself. To cast upon the ignorant mass of either race the responsibility of educating itself is simply to declare that a state can get on safely with such an element perpetually increasing at the bottom of society. It is like the foolish householder who should turn in disgust from the foul cesspool under his chamber window, waiting till it should purify itself, while he lavished his thousands on the adornment of the drawing room and the luxuries of his table. In due time a ghastly demon would arise from that neglected abyss and stalk through his palace, smiting the dearest household treasures with disease and death, and the glory of his mansion would be changed to a charnel house.

And we must realize that the most valuable education we can give these ignorant masses, of every sort, is the most stringent training in that intelligent industry, rigid economy, and public spirit which will bring out their children upon the high ground of worthy citizenship. It will be good for the southern colored man to know that he is not to remain the perpetual romance of Christendom; less and less, every year, will be bolstered up by charity from abroad, and more, as the years go on, will be forced to take his own place and make his way, in American style, toward the front. American citizenship cannot always mean prolonged childhood, or American suffrage the voting of ignorant masses on the most complex problem of government now set upon earth. The best friends of our colored people will now tell them that the highway to genuine "civil rights" is

the open front door of solid American manhood. The intelligent, industrious, and reliable portion of the freedmen, to-day, see more money and are better able to face a just taxation than the people of New England for the first fifty years of colonial life. The same habit of conscientious economy, intelligent industry, and persistent expenditure on the upper story of society that brought out that people, amid the stern surroundings of those early years, would land our southern freedmen and the lower masses of the white race, in half the time, in a position that would provoke the envy of the majority of mankind for education. *Taxation is even more the privilege of the poor than the duty of the rich;* for no national wealth can long endure the strain of a shiftless, childish, dependent lower class, that swallows up every thing thrown into it as the all-devouring grave shuts out the light of life.

The States of this Union where education is most glorified, and where the people are best satisfied with its results, are those in which a large proportion of the school funds are raised by local taxation. Massachusetts has no State school tax and distributes only a hundred and fifty thousand dollars yearly from State funds, while her local assessment last year reached the sum of five millions seven hundred thousand dollars, raised by towns and cities, which assessed themselves from one to four and a half mills upon the dollar for schools alone. Every Northern State, with but two exceptions, raises the major part of its school tax by home assessment: Pennsylvania and Iowa, the whole; New York, Ohio, and Illinois, four dollars to one. Of the Southern States the majority endeavor to support schools chiefly by State funds or general taxes, and the schools in the Southern States are satisfactory just in proportion to the local consent to taxation. In my journeying through the South, I am the perpetual witness to the sharp contrast between two sorts of communities in the same State and even neighborhood. One town refuses to assess the local tax and struggles on with an inferior public school, good enough to destroy the private schools, too poor to satisfy anybody, and the whole educational problem is a muddle from which nobody can find the way out. Another town, no more favored in means, assesses a competent tax, establishes graded schools for both races, utilizes the best teachers in the place, and finds itself, in six months, in the most enthusiastic state of satisfaction about the children. I have never seen little cities, of five thousand people, anywhere, in such a state of harmony and honest pride and happiness as scores of these towns, from Washington to San Antonio.

And nowhere does "bread cast upon the waters" bring so quick return in kind as in a town whose people, by a heroic effort, have united to support the elementary education for every child. The cities of Nashville and Atlanta, in ten years, have gained in reliable population and increase of valuation enough to pay, twice over, all their expenditure for schools. The best "boom" now in a good southern county town is a first rate system of public schools, crowned by a good academy for secondary instruction. I could give the names of a score of such places where the sudden increase of superior population from adjacent districts has raised the values of real estate in a way to make the school the best financial operation heard of in a generation.

So let all hands turn to and through the press and public speech, and especially by private converse between man and man, everywhere, push the fruitful idea that "the gods help those that help themselves;" that taxation for the children is an investment in all that good men and women hold dearest in our dear land; and that the community that gets in ahead with the best system of education for all, is bound to grow and become, if not in quantity, in the higher element of quality, a leader in the life of the new South.

THE TEACHER.

But I am told that, with the uttermost that can be expected even under favorable circumstances, the amount of money that can be set apart for education in the average southern community must be small, and the people may wellnigh be discouraged when they have done their best. All this I have seen, and am *not* discouraged myself; for the

upshot of all I know about education is that but *one* thing is absolutely necessary to a good school among a people alive for the children. That one absolute essential is a good teacher; and a good teacher every school may have if the people will begin to spend at the soul end and develop the material accessories therefrom. I am not indifferent to the great assistance that may be derived from a model school room, improved school books, and the various illustrative apparatus which adorns, sometimes even encumbers, the teacher's desk. But all this is a "body of death" till breathed upon by the spirit of the true instructor, and a real teacher can bring around himself at least a temporary body, until the people are able to give the fit clothing to his work.

General Garfield, returning to his alma mater, Williams College, Massachusetts, which for many years was known chiefly by the great teaching of President Hopkins, said, at commencement dinner: "I rejoice with you over the new surroundings of our old college: these beautiful buildings, large collections, ample endowments, and the improvements of this beautiful town. But permit me to say that, if I were forced to elect between all this without Dr. Hopkins and Dr. Hopkins with only a shingle and a piece of chalk, under an apple tree, he on one end of an oak log and I on the other, I would say, *My university shall be Dr. Hopkins, president and college in one.*"

May the South, in its new "building for the children," learn from the dismal American experience of the past, to *put its first money into the teacher*, and keep putting it in, until teachers and children persuade the people to give an outward temple fit for the dwelling place of the new spirit of life that has been born in their midst.

I have in mind a picture of a noble school-house, in a prosperous northern town, going to wreck, with broken windows, battered doors, the walls disfigured, the yards a litter, and the school itself a nursery of bad manners and clownish behavior. The trouble is a knot of "eminent" citizens, who insist on keeping in the central room a quarrelsome woman, "of good family" (its goodness largely under ground), whose obstinate conceit and selfishness make havoc of every good influence therein, defying the master above stairs and snubbing the poor girl teacher below till life is hardly worth living within range of her discordant rule. I remember another school, in the Southland, where one of the gentlest of gentlemen and bravest of captains, at the close of the war, gathered about him a crowd of wild little colored children in a deserted house and "kept school" so beautifully that, out of their own poverty, the colored people developed his dilapidated shanty into a neat and commodious school-house, where, with the help of the older children, he was giving instruction, in his faded old soldier clothes, such as I never knew until my school days had gone by. *A good teacher carries his school in himself.* His own life and daily "walk and conversation" are an hourly "object lesson" in morals and manners; his fulness of knowledge supplies the lack of text books; his fertile brain and child-like spirit blossom anew every day into some wise method of imparting truth or awakening faculty; and his cunning hand brings forth devices for illustration more effective than cabinets of costly apparatus. The best teachers tell us they can now manufacture all the illustrative machinery needed in a first class high school out of the debris that litters an ordinary attic, at a cost not exceeding two dollars and fifty cents. The librarian of the Department of State, at Washington, will show a set of manuscript school books, made by George Washington when he graduated, at thirteen, from his three-year, old time, Virginia school life, on the whole superior to any in use in the State of Virginia to-day. Nothing goes well with a poor teacher, whoever he may be, and all goes well when the true master or mistress of souls swings open the humblest school-house door.

One of the most valuable uses of a superior teacher, especially among an uncultivated and poverty stricken people, is the impetus given to every human faculty in the pupils, and the waking-up that comes among the entire population. I know a hundred neighborhoods where a good, womanly, Christian colored girl has gone from her academical course at Fisk or Hampton and so toiled with the children and prevailed with their

parents that she has not only gotten over her head a good school-house, but built up around her a "new departure" in a Christian civilization. If you have only money enough to procure the best teacher that can be had, take the teacher, gather the children, and begin to push for the millennium. If there is no fit interior, begin in God's school-house of all-out-doors. Somebody will give your new school elbow room under a tree, and the wondrous library of nature will spread its open leaves before you. Let the teacher instruct the boys to fence in a campus, and the girls to plant flowers therein, and make ready the place for building. Ere long the most godless or stupid of parents will take a big holiday to build you as good a house as they are able, and that humble temple of science may be so adorned by the genius and grace that you can coax out of thirty children and youth that it will become an invitation to better things. One book is enough in a school, if the teacher knows what to do with a book, while the Congressional Library is not enough for a pedant or a "professor," who only turns the crank of a memory machine. In such a school may be laid the granite foundations of a solid character; and thereon may be raised the strong timbers of a thoughtful and truthful mind, eager for knowledge, never getting enough; and over all may tower the roof of manly and womanly refinement, and with so little money! For the soul of a true teacher, enriched by the loving confidence of a crowd of devoted children, is a mine of gold and silver and precious stones, out of which may be drawn infinite riches for all the generations of men.

The central point in the new public school life of the South is the training of teachers into ample knowledge and professional skill in handling the best methods of instruction, organization, and discipline. What we call the "new education," as you can see it in more than one of your own school rooms and find it (not overmuch of it, I confess) all over the country, bears the same relation to the old muscular discipline, helter-skelter organization, and mechanical memorizing of books that the limited express train that took me in at New York, at 9 A. M., on a Friday, carried me, like a prince of the blood, a thousand miles, and delivered me in Louisville, Ky., "on the second," at 12.30 P. M., Saturday, bears to the stage coach that trundled from Nashville and Lexington, in my boyhood, with Andrew Jackson and Henry Clay for passengers, miring at every mile, losing wheels, breaking the harness, killing the "leader," perhaps indulging in a general overturn, till its way-worn crowd was dropped into the muddy streets of the Washington before the flood. A great teacher finds out such methods by experience, but a good training school gathers up the finer methods of all good teachers and strives to awaken the spirit that alone can walk in the better way.

Every large graded public school should have a master or mistress fit to train a teacher's class in the upper grade. Every academy or college without a chair of pedagogy and a live expert in that chair is like a dish without a handle or a cart without a horse. Every Southern State is able to establish one genuine normal school for each race, where the best methods can be illustrated and from which graduates may be sent forth to important points. The modern institute, in the hands of skilled teachers, is a normal school on wheels, that may be drawn all over a State and wake up new life in its drowsiest corner. And, for a generation yet, our Southern States will have the finest possible material for the teachers of their elementary schools in the multitudes of young white women of their better families, with those who are coming up from its poorer classes of whites; while the flower of the young colored people, an army fifteen thousand strong, is now being trained in a score of admirable schools for the good work. Too few, by far, of the foremost young men of the South will be persuaded to serve for the scanty pay of the school-master while the opening life of industrial enterprise combines with professional and public employment to lure them away. But since 1865 a whole generation of as bright and fine spirited young women as are found in any land have grown up, thousands of whom are earnestly looking for some honorable means of livelihood, and other thousands are asking how they can do their part in the mighty upbuilding of the new South. There

are your teachers — the best for the children — fit for any post of authority or administration, if you will only give them a fair chance at the table of knowledge and aid them to prepare themselves to teach. Herein is an arena more splendid than the old time "field of the cloth of gold," where a nobler than old time chivalry may step forth, in the rivalry of good offices, to crown these earnest, devoted maidens and matrons with a finer wreath than adorned the "queen of love and beauty," even the garland that encircles the brow of the gracious mistress whom the little children adore as beauty, love, and light incarnate in one bewitching form. I do not see how any rich man in the South can sleep o' nights until he has given to a group of these good girls the means of thus serving the State. The young man of culture and position who does not "go in" to help the girls in this their time of need has denied the good old southern faith in woman and is "worse than an infidel." The poorest mountain hamlet in Eastern Kentucky can raise the money, by some device, to send the best young woman of their region to Berea, that she may come back and teach the children how to excel themselves: so wonderfully has God provided the way for the uplifting of the lowliest through these vast areas, by bringing upon the finest class in the State, its promising young women, the necessity for exertion, and showing them the open door of the school-house, where woman in the coming generation can do more for 18,000,000 of people than any body of women or men was ever given the opportunity to do before.

NATURAL METHODS OF INSTRUCTION AND ORGANIZATION.

The fourth essential in "building for the children" is *the proper organization, grading, and method of instruction in every department of school education*. After the people have been aroused and money has been appropriated and competent teachers secured, we find ourselves on the threshold of a new difficulty, more troublesome than any other, because more widely diffused, illusive, and slow to be overcome. That difficulty is the chronic delusion of an ignorant class concerning the very nature of education, and its perpetual interference in baffling every wise plan for the solid teaching and substantial discipline of children and youth. An ignorant man inevitably regards education as a sort of magic and a school book as a sort of charm; the bigger the subject and the more learned the text book, the mightier the power of incantation. Thus, when the prepared teacher stands before the children of such a constituency, she is confronted with a sharp demand for impossible results and is expected to accomplish something beyond the power of gods or men. Too often this illusion is not confined to the illiterate. Thousands of earnest young men and women are studying their brains into a tangle and breaking down soul and body in a wrestling match with an absurd curriculum that would bother Agassiz himself, and can have no other result than hopeless confusion of mind and life long disgust at schools and teachers in the student. I am aware what multitudes of ambitious spirits, parents, "professors," and children, must be "humiliated" by this application of God's everlasting law that runs through the universe, and should be written over every school-house door: *Begin at the beginning; work from the known to the unknown; take no step in the dark*. The first condition of success in school work is to obey the law of the great Teacher: "Whosoever humbleth not himself and becometh as a little child, the same shall not enter the kingdom of heaven."

Of course, I teach no such nonsense as that the child in the elementary school shall be made a "thorough scholar" according to the test of the scientist. Science is not for "babes and sucklings." Rather does the true science of elementary education for children below the age of fourteen consist, first, in awakening the desire for knowledge; second, training the body, senses, and the faculty of observation to read the open book of nature; third, directing the youthful mind inward to a reverent study of human nature and self examination; fourth, showing the right way to use books and illustrations of knowledge; all the time working at the foundations of character that underlie all training of the mind, with constant regard to the "gentle manners" that are the finest flower

of wisdom and goodness. All this can be done by a skilled teacher with a very narrow course of study, embracing the few essentials of all mental growth. To read and write and use the mother tongue in simple, effective communication, with voice and pen; to know numbers, not alone as "figures," but in their relations to common things, for the great uses of common life; to hold a picture of the world we live in and its relations to the little patch of it which we inhabit and the infinite spaces in which it is only a floating speck of dust; to understand at least American history, with a rim of the chronicles of the rest of mankind; if possible, music enough to sing out the twang of the rod, and drawing enough, at odd moments, to untie the hand of the child; all the time with little lessons in nature knowledge and the fit care of the body, and "line upon line and precept upon precept" of true and good and beautiful behavior—here is a program that can be worked in a log school-house as effectively as in your State university by any competent teacher, *provided parents are willing their children should be children and school authorities insist on keeping things down to "hard-pan;"* for this beautiful way of teaching is so delightful to the children that, once in it, the old order is reversed, and they must be whipped to be kept away from school; and the wisest man who looks on would give all his honors to sit once more at the feet of that gracious schoolmistress as a little child.

I know just what I am saying. I fully understand that this is, by far, the most difficult problem in the new school life of the South. New England is still far behind it; the energetic West is only in the outer courts of the temple; but in every State I find a few schools that so beautifully illustrate it that I am sure the thing is possible, as all good things are possible, if men and women will only consent to unload themselves of pride, conceit, hypocrisy, and shams, and work honestly together in the love of God and man. But, easy or difficult, it matters not. Here is the everlasting law for the fit training of childhood and youth; and in God's law of human growth there is no "North and no South," no respect of persons, bond or free, white or black, great or small, but all must begin at the beginning, work from the known to the unknown, and take no step in the dark. Unless this can be achieved or some fair approach made thereto, our education of all grades will turn to dust and ashes in our hands, and a generation trained in shams will find its way to the solemn realities of American life only through new eras of buncombe, bankruptcy, and blood.

THE SECONDARY AND HIGHER EDUCATION.

Here will befound the practical solution of the vexed question of the secondary and higher education, over which too many of our anxious school men are talking themselves into a heat just now. Until this basis of all education is laid in the sensible and honest elementary instruction of the masses, there can be no higher education except for the favored few, and the secondary instruction will be a pompous "delusion and a snare." I am now talking, not of the high culture that may be found in the wilds of Siberia or the heart of Mexico, the exceptional appearance of genius and talent that everywhere looks out for itself, but of that education of the southern people which every true American desires—except an occasional member of Congress, for whom there seems too much reading, writing, and arithmetic abroad already. And I repeat that only after the work of a full generation, down in the deep places, among the common people, will our Southern States come to know the treasures that lie buried in both the races that inhabit their soil, like the beautiful new gem, hiddenite, first drawn out from the mysterious mountain sides of the Carolinas.

Ten years ago the parishioners of Phillips Brooks, in Boston, planned a magnificent church, worthy the fame and manliness of the great preacher. The money was raised, and Richardson, the Louisiana boy, now prince of Boston architects, was set to draw the plan. There came forth from his studio a noble pile, crowned by a massive tower that should overlook the city and float the song of chimes over among the Middlesex Fells, with sweet welcome to the sailor far out at sea. But, alas! this goodly temple must be

reared on piles, driven into the shaky ground of New Boston's aristocratic Back Bay. Before the foundations were half laid the disgusting piles began to wobble down. And, finally, the great architect was compelled to raze his plan, and leave out the lofty magnificence on which his heart was set. So the church is there, a wonder of ecclesiastical architecture, with the stump of the great tower shingled with tiles, waiting for the underworld of the Back Bay to "materialize" to solid ground. Even so do I find the noblest advocates of the higher education all up and down our Southland. No lack of bright boys and ambitious girls in every class or in either race; no special deficiency in excellent professors and university men; indeed, Harvard and Oxford and every wealthy northern university find the new South excellent recruiting ground for their most important chairs; but when the average pupil comes up to the academy the expert must too often face the problem that never yet was solved: how, with one hand, to reconstruct a false elementary education, and, with the other, build up the secondary and higher culture which the student desires.

At present, outside a score or two of cities in a region as large as Europe, all that can be reasonably demanded of the southern people is to keep up their State university, their agricultural and normal instruction for both races, and develop the summer institute into a permanent institution. It is practicable, in towns or cities of one thousand people, to organize a class of the superior students of both races, especially for training in the art of teaching; and this is important in towns where there is no good academy for boys and girls. But the true way, as I see it, in every considerable county town which already has an established academical school for boys or girls, is that these institutions should be reorganized for the proper work of secondary education in the true modern sense, divested of humbug, puff, and cram; as liberally endowed as home or outside generosity will warrant; filled with thorough teachers, and adjusted to take from the public graded school for white children all who really need superior schooling. Tuition can be made sufficiently reasonable, with occasional neighborly aid, to educate every promising child. Into these schools will be drawn an increasing crowd of pupils from the country, and in ten years every really good academy will be more prosperous and useful than ever before; for every little country school-house will be a feeder and the town graded school will make it possible for the academy to do solid and fruitful academical work and prepare the pupils for the college, which is now too often swamped in its academical grade, almost despairing of a real university life. This organization will serve the white people of the South for fifty years with an admirable system of education.

The same work is already being done for the colored folk in the excellent institutions planted in every Southern State by northern benevolence, in several States subsidized by the legislature, already one of the most powerful factors in the elevation of the freedmen. These great schools are growing in the estimation of all thoughtful southern men, and will become the final universities for the upper strata of the seven millions of the colored race. Of course, all this will come a good deal sooner if the teachers, patrons, and friends of the academies and colleges can be made to see that the people's common, elementary school is neither "godless," nor shiftless, nor a humbug in any way, when made the reality it now is in hundreds of southern towns and in many a favored spot in the open country. They will see that the people's common school is the best friend of the secondary and higher education, without which these will flounder on through constant failure, and come up cheerfully to its support.

THE FREE LIBRARY.

Every country school-house, every graded school, should *lay the foundation of a free library*, in a collection of good books and periodicals, for the children and youth of the neighborhood. Fifty volumes contributed by the reading families of a country school; a dozen good children's papers, passed in from village homes; a donation of good reading to the academy; a modern endowment for the college library, is practicable everywhere.

It will be of little use to teach the four millions of our southern children and youth to read, if they are turned over to the mercies of the dime novel, the Devil's Weekly, and the diabolical side of the daily press. Every steamboat that lands on a southern river port discharges a swarm of rats to plague the people, and many a railroad that penetrates its mountain recesses, or bridges its bayous, disgorge the more mischievous pest of vile reading, the vilest nuisance of metropolitan life. Now the only sure defence against a bad book or newspaper is to teach our children to prefer a good book and to stop the paper until it is clean. And this training of a general taste for good reading cannot begin too soon and is just as important as any other function of school life. The free library and superior journalism are the literary university of the mass of the American people; the complement of good preaching, lecturing, and public speaking of all sorts; a most vital part of that grandest of all human educational agencies, the University of American Life. Our wealthy southern men at home and those who go to manœuvre their millions in Wall street should be called upon to lay the foundations of good libraries where they can best be laid in connection with the school. And I would say to the northern philanthropist: Plant a generous library of good books in every growing southern community.

INDUSTRIAL EDUCATION.

I have but a brief space to give to the great theme of industrial education, now looming above our horizon, concerning which, just now, there is more flying of chaff with less outcome of wheat than on any threshing floor in America.

My conclusion on industrial education in the South runs about in this way. To-day, as I read the statistics of southern industry, I see that somebody is prodigiously at work in every corner of its broad domain, and think that stern schoolmaster, necessity, can be trusted, for the next generation, to wield a very sharp pitchfork about the waistband of every "lazy" southern man or woman, a method a good deal more effective than any schoolmaster's recipe of industrial education. I think laziness is not our natural vice and have little patience with the people who expect American children to get their own living or American boys and girls to shoulder the burdens that only belong to mature life. But I do see that the great lack to-day of the South is that general intelligence in several millions of its laboring class, of both races, which always, in this country, ultimates itself in more profitable, because better, more skilful and varied industries. The radical help for this lack is not what is sometimes called industrial training; but it is the thorough elementary schooling that will wake up the mind and train the faculty of the children of these illiterate and unskilled workers. The testimony of every civilized nation is to the effect that the final outcome of good schooling is a gradual expansion and uplifting of industrial life. The finest tool of all is the human mind, and the man who can take his own mind by the handle and turn it, in school boy phrase, "every which way," is the leader in every region of industrial no less than spiritual life. Book cramming does not make skilled workers. Sham teaching ultimates in an epidemic of "big head," with no corresponding growth of brain or skill of hand. But the blessed new education, the natural, divine, God's method of teaching and training the child, will send forth the southern boy and girl of a coming generation in a way that will make many a dead prophet of dismay in northern and southern graveyards turn in his coffin with supernatural surprise.

TECHNICAL AND ART EDUCATION.

Meanwhile, in every city, the leading class of women can establish schools for the training of servants, and, by discriminating in favor of the best, gradually get the southern household on firm foundations of skilled labor and domestic science in the kitchen. The State agricultural colleges can do anything the people need, as soon as the people understand that agriculture is as surely a science as chemistry and that country life in

the South can be made the most attractive, comfortable, wholesome, and truly refined of any land. Our colored universities should, more and more, become schools of skilled labor, and every graduate should go forth to become a missionary of skilled industry, wherever he lives or whatever he does. In every leading city the women's association for the encouragement of art should be pushed with vigor till it becomes a proper school for the female artisan, who will be needed before the present girls have passed the Rubicon of middle life. There are more than a hundred ways, all respectable, by which a girl in Massachusetts can earn an honest living, and thousands of Massachusetts women, including teachers, are said to be earning from \$1,000 to \$3,000 a year. The South is to grow in wealth and the demand for manufactured articles, for use and ornament, more rapidly every year. Why should not the multitudes of its young women, now longing for something profitable to do, be trained at home for this profitable work? Why should every western railroad groan under the army of its young men drifting from the older Southern States to the wilderness, while no country in the world gives fairer invitation to every form of useful and beautiful industry in the region of skilled activity? The colored people of the South have in them remarkable capabilities as operators and workers in ornamental manufactures, and the men who do not or will not see it seem to me like the farmer who turns his back on the expert who assures him that the hundred acres of his roughest land cover a mine of coal or iron that, fitly worked, will bring him out a millionaire. All this will come with the growing education of the masses. Why not let it come now for these people, and not wait for swarms of foreign-born workers to come in and reap the harvest that belongs to them? And with this will come all higher culture in music and literature and art; while the beautiful social life that has always been the pride of its upper class will gradually make its way downward and freshen and gladden and sweeten every southern home.

NATIONAL AID FOR EDUCATION.

Now, when I stand before a committee of Congress or an audience in Massachusetts or Minnesota, and say *The Nation should help the southern people in this mighty enterprise of building for 4,000,000 children and youth*, I speak in view of all I have said. I remember that in 1865 southern education was in the dust and that in 1885 its higher education will have been placed on its feet better than ever; the public school established in every State, for both races; in every State improving every year; and that, by the twentieth year from 1865, probably nearly \$20,000,000 will be expended by the southern people, of their own money, on building for the children. I ask the nation to help the southern people *because no people, under similar disadvantages, has done so big a job of helping itself*. I ask it because it is constitutional and in the direct line of public policy, from the foundation of the Confederation that preceded the Union. Every American State has received and used national money; the northwestern and southwestern States, millions on millions in land grants for education. Every State has indorsed the policy of national aid to education, over and over, by receiving and using such appropriations. The common school fund of Kentucky was founded on the surplus revenue distributed in 1836 by the General Government, as was the school fund, in part, of several of the States. The only "humiliation" in receiving such aid would come with the improper use of the money; and, after the lessons of two generations, I believe the southern people know how to apply money for the children. Of course, such aid should only be given for a time to stimulate, and not take the place of, home effort and should be distributed by each State according to wise legislation in Congress. I believe the people will demand national aid for education as soon as they know what it means.

THE FOUNDATIONS.

In this way alone, as I see it, can we dry up the sources of evil doing in our land. Every State, city, and county in this republic has under it an open slough, through

which the all-pervading national barbarism, home and foreign, that rolls its foul and festering subterranean tide from Maine to Mexico, disgorges its hideous malaria. I never lived in any city where that malaria of barbarism would not make "the whole head sick and the whole heart faint," unless every good man and woman and child was summoned to cast in disinfectants and toil and "pray without ceasing" to keep it down. I find, nowhere, a more devoted, God-fearing, and resolute band of God's minute men and women standing by this opening into hell than in every State and city in the South in which I have put my foot for the past four years. And I realize that one good way to shut off the fumes of the pit in Boston is to come down "to the help of the Lord against the mighty" in New Orleans. Every brave soul in New England stands more erect with every blast on the bugle-horn of Haygood and Curry. I know of no way to dry up the sources of every sort of folly and wickedness in our beloved land except God's original method to put a wise, good man in the place of every foolish, wicked man; to put a good mother into every family, a good minister in every church, a good teacher in every school. I believe the American people, North and South, are quietly but effectually getting out of the hands of little "statesmen," with their little patent right contrivances for "saving the country" by a new plank in an old platform or a new phrase in an old political resolution. The loud conflicts of parties and sects and classes, with all that makes for separation and hatred and disintegration, will still rage in the upper air; but, as the years roll on, the central, solid aristocracy of mind and soul and hand in this great country will find itself, through all disguises, and will "settle down" to the second century's work of building the new Republic on foundations that cannot be moved, while building for the children, in every school, in every church, in every home in this our beloved country, before all others favored of God, beyond all other nations the hope of good men around the globe.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

BUILDING
FOR THE
CHILDREN IN THE SOUTH.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, December, 1884.

The educational labors of Rev. A. D. Mayo in different parts of the country are among those which have proved most effective and have been most widely appreciated. His addresses on education in the South during the last four years have been most beneficial in reviving the interests of education in that section, and have been called for there and wherever there is an interest in the success of the cause in that portion of the country. The accompanying is one of Mr. Mayo's most recent and comprehensive addresses, and I have deemed it expedient to extend the sphere of its usefulness by distributing it as one of the publications of this Office, and thereby answering many demands.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

BUILDING FOR THE CHILDREN IN THE SOUTH.

I purpose, under the title "Building for the Children in the South," to give the results of a four years' careful observation through the States beyond the Potomac and the Ohio concerning the most practical and effective way of establishing

THE AMERICAN SYSTEM OF EDUCATION.

By the American system of education, I mean not one kind of schools exclusively, but all good schooling that has been found valuable in our country. The American system of education means, first and foremost, the free common school for all children, supported by public taxation, administered by experts who are chosen by the people (in public education, as in government, the final court of appeal in this Republic); the free secondary, normal, technical, and higher education, held as a matter of undoubted public right, to be exercised in every State according to a high educational expediency, of which the people are the final judge, both elementary and superior public schools being kept as near the people in their local capacity as is consistent with efficient administration: even State supervision being confined to things that are general and essential, and national aid invited only at the most critical points, with the sole purpose to stimulate local effort, with no assumption of national supervision or control.

Of course, public education, thus defined, has its general function in the elementary training of mind, discipline of character, and imparting of common information which every wise man knows are essential to the humblest citizen and the loftiest statesman alike.

Of the six millions of American children and youth actually in daily attendance and the ten millions loosely enrolled in public and the three hundred thousand in private schools, nine-tenths will certainly turn their backs upon the school-house door as early as the age of fourteen. The first and ever-present concern in the American system is to do the best thing possible for these millions of children whose average school life to-day in the East does not exceed six, in the West five, or in the South three full school years. In the secondary, higher, industrial, and normal departments, which deal with the few hundred thousand youth in training for educational and social leadership, the common school has its right, which the people have unmistakably confirmed in every American State. But, in this upper region of education, the people invite the coöperation of every effective school. There is ample field for the display of individual genius, of corporate enterprise, of home and neighborhood training. And here the church, of every communion, has a field of operation so broad and exacting that it may well limit its efforts to what it can never half include and provoke no conflict with the people on that field where the people are bound to have their way, whoever goes to the wall: the maintenance, at public expense, of the free elementary school, open to every child, unsectarian in religion though profoundly moral and religious in the grain, unpartisan in politics, knowing no distinction of race or sex or social condition, the people's university of American citizenship for every American child.

More and more is it coming to be understood by all competent and patriotic thinkers that there is no necessary conflict of interests between these different methods of achieving the great result, since the most exclusive private or parochial school in our country must finally adjust itself to the conditions of our peculiar American life. And it will be a national calamity if, in the face of the invading host of illiteracy now marching in solid rank to capture the public life of every American city and State, the champions of the various departments of school life permit themselves to be drawn into a side quarrel that shall for a moment divert the attention of the people from the one Ameri-

can question that towers immeasurably above all present issues of church and state: What shall we do with that American barbarism which, disguised under any deceptive title, is the same hateful thing, in New Orleans or in Boston, in the wilds of the mountains or the slums of the metropolis, in the blanket of the cowboy or under the dress coat of the senator, the implacable foe of everything which every true American holds essential to the existence of the foremost Republic in the world?

I propose to tell how, under the present conditions, the whole people of the South, within the present generation, can fairly and firmly place on the ground this American system of education; for I hold that if the people of these sixteen States, with all the help that Providence may vouchsafe, in a long generation, can establish their final system of education, which shall be developed as the years go on, it will have done the greatest work for the children ever yet accomplished in Christendom. And in this "Building for the Children" I do not appear as an outside architect, flourishing an ideal plan or insisting upon any local excellence of home or foreign celebrity. Indeed, *I shall speak of nothing which has not been actually tried, with complete success, under average conditions, in some part of the Southland.* So my discourse will only be an honest effort to voice the achievements of southern school men comparing notes and cheering each other around the corner of the mighty structure now rising under their hands. I only presume to wield the baton of the orchestra while it plays an overture which is but a series of variations on this one theme, every strain and note caught and fixed in the score as it has floated in from the solitary music breathed into the ear of some little child.

THE AWAKENING OF THE PEOPLE.

The first condition of success in our Southern States is a great and general awakening of all classes of the southern people to the appalling dangers of the illiteracy revealed, though half concealed, by the startling figures of the national census of 1880; for, until the whole people of the South honestly face this condition, there can be no general or very effective development of educational reform. The superior class of the southern people, during the past fifteen years, under circumstances that would have appalled any but an American people, have put in operation, in every State, a sufficient system of public schools and have reconstructed and enlarged their old system of the secondary and higher education. And I say here, if need be in the face of disparagement from over the line, that no body of superior people, so few in numbers, so overwhelmed in the work of rebuilding society from the wreck of civil war, has anywhere made an effort so heroic, with such a hopeful outlook, as this people of whom I speak. This year the sixteen States, once known as southern, will spend not less than fifteen millions of dollars upon the education of their children, and in every State there will be a positive gain in every department of educational life.

But everybody knows that this is only the beginning, and is, at best, so painfully inadequate to compass the result that it were well to waste no time in congratulations, but press onward to the more difficult work of *a great awakening of the whole people of the South.* For here is the cause of the imperfect working, sometimes the discouraging failure, of the best plans of "building for the children." In every community there are men of wealth and influence not yet really awakened to this mighty necessity of the people. There are too many reasonably prosperous and respectable parents only concerned for their own children, not even intelligently informed of their demands. And there is the mighty army of those to whom education is yet only a vague name—at best a name to charm with—who either care nothing for the school or abuse it by ignorant interference with everything wisely done therein. Now, in Europe, the method of dealing with such a situation would be for a centralized government to mature a plan, enact a law, place the expert in the school room and the policeman at the father's elbow, and enforce such elementary instruction as it should deem expedient for a state governed by itself. But I need not say this is not the American, especially is not the Southern American, way in

which any good thing can be done. Nowhere in our country has a group of eminent people so great influence for good as still in the South; but, after all, its power is only moral and its implement is only agitation. If anybody in those States is deluding himself with the fancy that an effective system of schools for the masses can, in any way, be forced upon, smuggled into, or insinuated among the people without their full consent and hearty coöperation, his disenchantment is only a question of time. Anybody can lead the horse to water, but all the world can't force the horse to drink unless he is dry. Only when this great mass of ignorance and indifference at the bottom of every State is agitated, upheaved, and moved to its deepest depths, can anything effective be accomplished in such a mighty work as I outline. Until this is done our southern school life, from the plantation primary to the University of Virginia, will be a vessel tossed on the stormy waves of a treacherous sea. As this is accomplished, all schools will improve, superior teachers will come into demand, and, in a thousand ways now deemed impossible, money will flow in to help the building rise towards heaven.

This great awakening cannot be achieved, to any large extent, by laborers from without, but is the proper work of the whole superior class at home. Every State has its own favorite way of raising a popular breeze. Every popular device not absolutely unsuited to the case should be brought into requisition for the next ten years to arouse the people. The leading press of every Southern State is now doing splendid service, and only needs to be told to keep on doing the same thing, a little harder, every week. Every county, village, secular, and religious newspaper should be "roped in" and made to blaze with the best columns that the ablest friend of the children can indite. The pulpit should be summoned to speak out in unmistakable tones for that general enlightenment, without which every church becomes a dark cave of superstition, where contentious Christians squabble over dry bones of non-essentials, knowing not the light of that love which is the "fulfilling of the law." Every candidate for public office, from President down to policeman, should be compelled to face the people and tell "what he knows about" education. It will be "mighty" convenient, twenty years hence, for the young lawyers and ambitious young men of the South to be able to pull out of their pockets a "ringing speech" in behalf of the boys and girls who will then pass in the ballots that decide their political fate. And if great statesmen pose and ponder in uncertainty, and mighty doctors have no opinions, and the stars of fashion "have no use" for themes so commonplace as education in their drawing rooms, then let every earnest man and woman, every eager school boy and girl come to the front to plead, "in season and out of season," for the children. And if all other devices fail, perhaps the Lord of Light will inspire even gouty, grizzly, ragged old Uncle Remus to climb the nearest rail fence and give his last shout, "*God bress de little children in de schools.*"

I know of what I speak when I say that the inward ear of the South is now awaiting this mighty call, all ready to respond. Why, even I, a stranger from the far-off land of snowdrifts and east wind, a man of whom nobody had heard, with only a hundred dollars in my pocket and nothing in my carpet-bag but the new education, have been welcomed through the length and breadth of the great Southern Empire in a way almost unheard of in the annals of American educational life. I have found no crowd of colored folk so humble that they did not hearken like quiet children while I have talked of the blessings of education. The most frisky colony of small boys on the front seat of the opera-house becomes my most receptive audience as soon as they find out I am talking for them. The wisest of southern men come to find out if I have any key to unlock any educational gate now closed. The best people in a hundred villages tramp through winter mud and storm to encourage my familiar talk. The only drawback to my ministry is the fact that I know so little of what I speak; am a man of sixty, who lost my constitution forty years ago and am now living on the few remaining by-laws; cannot be in a hundred places at once, correspond with every teacher, and be the friend of every smart boy and darling little girl between the Potomac and the Rio Grande. I go to a town of ten thousand people, and find the largest assembly hall thrown open, at noon-

day, crowded with school children and their teachers ; the gallery a rainbow of pretty girls from the neighboring academy ; the leading men of the city on the platform ; all hungry and thirsty for the gospel according to the children. I am invited to an educational barbecue, where, after the mighty roast is consumed, the people gather in solid mass around the most convenient stump, and close my hour of talk with a resolve to "go the whole hog" for education. I stand in a college chapel, twenty years ago a hospital and a fortress on the battleground in the rear of Vicksburg, the old port holes yet remaining in its dilapidated window shutters, the house crowded with the young people of two great schools, the sons and daughters of the men we were fighting then, now cheering every patriotic word as lustily as a music hall full of Boston boys and girls. Now if I, a stranger and nobody in particular, can do these things, what cannot the foremost men of the South, in this home of eloquence, what cannot these women before whose social power we all doff our hats, achieve, if once moved by the spirit of the Lord, as workers in this great revival for the awakening of the people in the supreme cause of "building for the children?" Surely, a people so magnetic, susceptible, enthusiastic, and irresistible as this, one need not entreat to come forth once more in its might in behalf of those who are dearer than life. The country wants the South not otherwise than as God made it and the providential schooling of the past has left it, and only demands that its people shall give themselves, just as they are, in their own best way, to this glorious crusade for light and love. Let South Carolina go on "eating fire;" only follow her splendid schoolmaster, Governor Thomson, eating fire in behalf of education. Let the whole South become "solid" for the children, and it shall become the corner "stone that cannot be broken," on which shall rise the temple of liberty seen in vision by the fathers, still the dearest hope of all her worthy daughters and patriotic sons.

LOCAL TAXATION FOR EDUCATION.

The second condition of success in "building for the children" is *to thoroughly arouse and inform the public mind on the radical importance of general local taxation for the support of schools.* The average man always finds it difficult to take up one good thing without dropping another. Our Southern States, for the next generation, need every agency for the support of schools, individual, corporate, local, and State, with all the aid that the National Government can be induced to give. But it is very important that the people should know *where the real pinch must finally come*, and who can justly be held responsible for the success or failure of their new education. A community that buttons up its own pocket and waits for private beneficence, State or national aid, to educate its children, will certainly be disappointed and remain in ignorance. So, whatever may be our individual opinion on the supplementary aids for the public school, all thoughtful men must agree in this, *that the burden must finally be shouldered by the community whose children are taught in the schools.*

I know the uncertain ground on which I tread when I press home this point of local taxation. One of the most painful signs of ignorance and selfishness in public affairs is the prevalence of the notion that taxation, at best, is disguised despotism and the community that gets off with the least is most to be congratulated. The most fruitful field for the demagogue is a community demoralized by this fallacy, for he has only to raise the cry of "reduction of taxes" to carry a majority of deluded people, who, to save on the tax bill, will put the knife to the throat of every sacred interest and willingly drift back to barbarism. *The poorest speculation in financial affairs is to knock out the brains of a community to save money.* The American idea is that taxation is a voluntary assessment of the people, according to their ability, to pay for things indispensable to the existence and progress of the community. And wisdom in public finance consists in taxing most generously for the most radical public necessity. The State or community that taxes bravely and amply for public education will find itself more and more relieved from the thousand perils of public dishonesty, public corruption, and the hateful charge for crime

and pauperism, and the manifold curses that, like a flock of buzzards, hover over an ignorant people.

Whatever may be our theory of public finance, it must be evident that *the one place where local taxation can be most forcibly urged is in behalf of the children.* All men give money freely for what they love best; and surely the school tax should have in it most of the heart and mind of the people. There may be reasonable doubt concerning the outcome of expenditure for many objects of public concern, but no competent man for a moment will question the wisdom of the most generous investment in that education which is the development of power and the training of every kind of ability that will insure the highest prosperity of every sort in the years to come; for public money wisely expended in a good school is money loaned to the one creditor who always pays, who inherits what we must leave, to whose charge must be committed everything for which men toil, suffer, and fight in this world. The real treasury of every commonwealth, of any city or county therein, is the child. Every thing, at last, depends on our success in making him intelligent, industrious, refined, and good. The character of a town, a county, a generation hence, is the character we pay for by what we give to the upper story of the child to-day. To leave him in mental and moral darkness, ignorant, superstitious, brutal, quarrelsome, and shut up to his own little narrow life, is the surest way on earth to blight the community to which he belongs. So every dollar wisely expended on the child is "treasure laid up in heaven," and heaven always pays compound interest, while hell was repudiation and bankruptcy from the beginning. Whatever may be left undone by Nation or States, no community that understands its own interest will evade or resist the utmost possible sacrifice for that public education which pays everybody as no other outlay does in this world. And the men who should lead in this good work should be those whom God has blessed with abundant means. The only safety for prosperity is found where the mass of the people is competent to understand the relations of capital and labor. Communism is the pit that yawns below every state whose masses are groping through the perilous labyrinth of mental confusion and labor without brains. Of all classes in our country, the wealthy class can least afford to advocate a narrow and selfish policy in public education.

And, further, we must insist that justice and interest alike demand the most generous and persistent expenditure for education in the very lowest strata of society. There is little danger that the children of the well-to-do and superior class will not enjoy the best opportunities; but the one class no state can afford to neglect is that for which the majority cares little, and which, so often, has no wise regard for itself. To cast upon the ignorant mass of either race the responsibility of educating itself is simply to declare that a state can get on safely with such an element perpetually increasing at the bottom of society. It is like the foolish householder who should turn in disgust from the foul cesspool under his chamber window, waiting till it should purify itself, while he lavished his thousands on the adornment of the drawing room and the luxuries of his table. In due time a ghastly demon would arise from that neglected abyss and stalk through his palace, smiting the dearest household treasures with disease and death, and the glory of his mansion would be changed to a charnel house.

And we must realize that the most valuable education we can give these ignorant masses, of every sort, is the most stringent training in that intelligent industry, rigid economy, and public spirit which will bring out their children upon the high ground of worthy citizenship. It will be good for the southern colored man to know that he is not to remain the perpetual romance of Christendom; less and less, every year, will be bolstered up by charity from abroad, and more, as the years go on, will be forced to take his own place and make his way, in American style, toward the front. American citizenship cannot always mean prolonged childhood, or American suffrage the voting of ignorant masses on the most complex problem of government now set upon earth. The best friends of our colored people will now tell them that the highway to genuine "civil rights" is

the open front door of solid American manhood. The intelligent, industrious, and reliable portion of the freedmen, to-day, see more money and are better able to face a just taxation than the people of New England for the first fifty years of colonial life. The same habit of conscientious economy, intelligent industry, and persistent expenditure on the upper story of society that brought out that people, amid the stern surroundings of those early years, would land our southern freedmen and the lower masses of the white race, in half the time, in a position that would provoke the envy of the majority of mankind for education. *Taxation is even more the privilege of the poor than the duty of the rich;* for no national wealth can long endure the strain of a shiftless, childish, dependent lower class, that swallows up every thing thrown into it as the all-devouring grave shuts out the light of life.

The States of this Union where education is most glorified, and where the people are best satisfied with its results, are those in which a large proportion of the school funds are raised by local taxation. Massachusetts has no State school tax and distributes only a hundred and fifty thousand dollars yearly from State funds, while her local assessment last year reached the sum of five millions seven hundred thousand dollars, raised by towns and cities, which assessed themselves from one to four and a half mills upon the dollar for schools alone. Every Northern State, with but two exceptions, raises the major part of its school tax by home assessment: Pennsylvania and Iowa, the whole; New York, Ohio, and Illinois, four dollars to one. Of the Southern States the majority endeavor to support schools chiefly by State funds or general taxes, and the schools in the Southern States are satisfactory just in proportion to the local consent to taxation. In my journeying through the South, I am the perpetual witness to the sharp contrast between two sorts of communities in the same State and even neighborhood. One town refuses to assess the local tax and struggles on with an inferior public school, good enough to destroy the private schools, too poor to satisfy anybody, and the whole educational problem is a muddle from which nobody can find the way out. Another town, no more favored in means, assesses a competent tax, establishes graded schools for both races, utilizes the best teachers in the place, and finds itself, in six months, in the most enthusiastic state of satisfaction about the children. I have never seen little cities, of five thousand people, anywhere, in such a state of harmony and honest pride and happiness as scores of these towns, from Washington to San Antonio.

And nowhere does "bread cast upon the waters" bring so quick return in kind as in a town whose people, by a heroic effort, have united to support the elementary education for every child. The cities of Nashville and Atlanta, in ten years, have gained in reliable population and increase of valuation enough to pay, twice over, all their expenditure for schools. The best "boom" now in a good southern county town is a first rate system of public schools, crowned by a good academy for secondary instruction. I could give the names of a score of such places where the sudden increase of superior population from adjacent districts has raised the values of real estate in a way to make the school the best financial operation heard of in a generation.

So let all hands turn to and through the press and public speech, and especially by private converse between man and man, everywhere, push the fruitful idea that "the gods help those that help themselves;" that taxation for the children is an investment in all that good men and women hold dearest in our dear land; and that the community that gets in ahead with the best system of education for all, is bound to grow and become, if not in quantity, in the higher element of quality, a leader in the life of the new South.

THE TEACHER.

But I am told that, with the uttermost that can be expected even under favorable circumstances, the amount of money that can be set apart for education in the average southern community must be small, and the people may well nigh be discouraged when they have done their best. All this I have seen, and am *not* discouraged myself; for the

upshot of all I know about education is that but *one* thing is absolutely necessary to a good school among a people alive for the children. That one absolute essential is a good teacher; and a good teacher every school may have if the people will begin to spend at the soul end and develop the material accessories therefrom. I am not indifferent to the great assistance that may be derived from a model school room, improved school books, and the various illustrative apparatus which adorns, sometimes even encumbers, the teacher's desk. But all this is a "body of death" till breathed upon by the spirit of the true instructor, and a real teacher can bring around himself at least a temporary body, until the people are able to give the fit clothing to his work.

General Garfield, returning to his alma mater, Williams College, Massachusetts, which for many years was known chiefly by the great teaching of President Hopkins, said, at commencement dinner: "I rejoice with you over the new surroundings of our old college: these beautiful buildings, large collections, ample endowments, and the improvements of this beautiful town. But permit me to say that, if I were forced to elect between all this without Dr. Hopkins and Dr. Hopkins with only a shingle and a piece of chalk, under an apple tree, he on one end of an oak log and I on the other, I would say, *My university shall be Dr. Hopkins, president and college in one.*"

May the South, in its new "building for the children," learn from the dismal American experience of the past, *to put its first money into the teacher*, and keep putting it in, until teachers and children persuade the people to give an outward temple fit for the dwelling place of the new spirit of life that has been born in their midst.

I have in mind a picture of a noble school-house, in a prosperous northern town, going to wreck, with broken windows, battered doors, the walls disfigured, the yards a litter, and the school itself a nursery of bad manners and clownish behavior. The trouble is a knot of "eminent" citizens, who insist on keeping in the central room a quarrelsome woman, "of good family" (its goodness largely under ground), whose obstinate conceit and selfishness make havoc of every good influence therein, defying the master above stairs and snubbing the poor girl teacher below till life is hardly worth living within range of her discordant rule. I remember another school, in the Southland, where one of the gentlest of gentlemen and bravest of captains, at the close of the war, gathered about him a crowd of wild little colored children in a deserted house and "kept school" so beautifully that, out of their own poverty, the colored people developed his dilapidated shanty into a neat and commodious school-house, where, with the help of the older children, he was giving instruction, in his faded old soldier clothes, such as I never knew until my school days had gone by. *A good teacher carries his school in himself.* His own life and daily "walk and conversation" are an hourly "object lesson" in morals and manners; his fulness of knowledge supplies the lack of text books; his fertile brain and child-like spirit blossom anew every day into some wise method of imparting truth or awakening faculty; and his cunning hand brings forth devices for illustration more effective than cabinets of costly apparatus. The best teachers tell us they can now manufacture all the illustrative machinery needed in a first class high school out of the débris that litters an ordinary attic, at a cost not exceeding two dollars and fifty cents. The librarian of the Department of State, at Washington, will show a set of manuscript school books, made by George Washington when he graduated, at thirteen, from his three-year, old time, Virginia school life, on the whole superior to any in use in the State of Virginia to-day. Nothing goes well with a poor teacher, whoever he may be, and all goes well when the true master or mistress of souls swings open the humblest school-house door.

One of the most valuable uses of a superior teacher, especially among an uncultivated and poverty stricken people, is the impetus given to every human faculty in the pupils, and the waking-up that comes among the entire population. I know a hundred neighborhoods where a good, womanly, Christian colored girl has gone from her academical course at Fisk or Hampton and so toiled with the children and prevailed with their

parents that she has not only gotten over her head a good school-house, but built up around her a "new departure" in a Christian civilization. If you have only money enough to procure the best teacher that can be had, take the teacher, gather the children, and begin to push for the millennium. If there is no fit interior, begin in God's school-house of all-out-doors. Somebody will give your new school elbow room under a tree, and the wondrous library of nature will spread its open leaves before you. Let the teacher instruct the boys to fence in a campus, and the girls to plant flowers therein, and make ready the place for building. Ere long the most godless or stupid of parents will take a big holiday to build you as good a house as they are able, and that humble temple of science may be so adorned by the genius and grace that you can coax out of thirty children and youth that it will become an invitation to better things. One book is enough in a school, if the teacher knows what to do with a book, while the Congressional Library is not enough for a pedant or a "professor," who only turns the crank of a memory machine. In such a school may be laid the granite foundations of a solid character; and thereon may be raised the strong timbers of a thoughtful and truthful mind, eager for knowledge, never getting enough; and over all may tower the roof of manly and womanly refinement, and with so little money! For the soul of a true teacher, enriched by the loving confidence of a crowd of devoted children, is a mine of gold and silver and precious stones, out of which may be drawn infinite riches for all the generations of men.

The central point in the new public school life of the South is the training of teachers into ample knowledge and professional skill in handling the best methods of instruction, organization, and discipline. What we call the "new education," as you can see it in more than one of your own school rooms and find it (not overmuch of it, I confess) all over the country, bears the same relation to the old muscular discipline, helter-skelter organization, and mechanical memorizing of books that the limited express train that took me in at New York, at 9 A. M., on a Friday, carried me, like a prince of the blood, a thousand miles, and delivered me in Louisville, Ky., "on the second," at 12.30 P. M., Saturday, bears to the stage coach that trundled from Nashville and Lexington, in my boyhood, with Andrew Jackson and Henry Clay for passengers, miring at every mile, losing wheels, breaking the harness, killing the "leader," perhaps indulging in a general overturn, till its way-worn crowd was dropped into the muddy streets of the Washington before the flood. A great teacher finds out such methods by experience, but a good training school gathers up the finer methods of all good teachers and strives to awaken the spirit that alone can walk in the better way.

Every large graded public school should have a master or mistress fit to train a teacher's class in the upper grade. Every academy or college without a chair of pedagogy and a live expert in that chair is like a dish without a handle or a cart without a horse. Every Southern State is able to establish one genuine normal school for each race, where the best methods can be illustrated and from which graduates may be sent forth to important points. The modern institute, in the hands of skilled teachers, is a normal school on wheels, that may be drawn all over a State and wake up new life in its drowsiest corner. And, for a generation yet, our Southern States will have the finest possible material for the teachers of their elementary schools in the multitudes of young white women of their better families, with those who are coming up from its poorer classes of whites; while the flower of the young colored people, an army fifteen thousand strong, is now being trained in a score of admirable schools for the good work. Too few, by far, of the foremost young men of the South will be persuaded to serve for the scanty pay of the school-master while the opening life of industrial enterprise combines with professional and public employment to lure them away. But since 1865 a whole generation of as bright and fine spirited young women as are found in any land have grown up, thousands of whom are earnestly looking for some honorable means of livelihood, and other thousands are asking how they can do their part in the mighty upbuilding of the new South. There

are your teachers — the best for the children — fit for any post of authority or administration, if you will only give them a fair chance at the table of knowledge and aid them to prepare themselves to teach. Herein is an arena more splendid than the old time "field of the cloth of gold," where a nobler than old time chivalry may step forth, in the rivalry of good offices, to crown these earnest, devoted maidens and matrons with a finer wreath than adorned the "queen of love and beauty," even the garland that encircles the brow of the gracious mistress whom the little children adore as beauty, love, and light incarnate in one bewitching form. I do not see how any rich man in the South can sleep o' nights until he has given to a group of these good girls the means of thus serving the State. The young man of culture and position who does not "go in" to help the girls in this their time of need has denied the good old southern faith in woman and is "worse than an infidel." The poorest mountain hamlet in Eastern Kentucky can raise the money, by some device, to send the best young woman of their region to Berea, that she may come back and teach the children how to excel themselves: so wonderfully has God provided the way for the uplifting of the lowliest through these vast areas, by bringing upon the finest class in the State, its promising young women, the necessity for exertion, and showing them the open door of the school-house, where woman in the coming generation can do more for 18,000,000 of people than any body of women or men was ever given the opportunity to do before.

NATURAL METHODS OF INSTRUCTION AND ORGANIZATION.

The fourth essential in "building for the children" is the *proper organization, grading, and method of instruction in every department of school education*. After the people have been aroused and money has been appropriated and competent teachers secured, we find ourselves on the threshold of a new difficulty, more troublesome than any other, because more widely diffused, illusive, and slow to be overcome. That difficulty is the chronic delusion of an ignorant class concerning the very nature of education, and its perpetual interference in baffling every wise plan for the solid teaching and substantial discipline of children and youth. An ignorant man inevitably regards education as a sort of magic and a school book as a sort of charm; the bigger the subject and the more learned the text book, the mightier the power of incantation. Thus, when the prepared teacher stands before the children of such a constituency, she is confronted with a sharp demand for impossible results and is expected to accomplish something beyond the power of gods or men. Too often this illusion is not confined to the illiterate. Thousands of earnest young men and women are studying their brains into a tangle and breaking down soul and body in a wrestling match with an absurd curriculum that would bother Agassiz himself, and can have no other result than hopeless confusion of mind and life long disgust at schools and teachers in the student. I am aware what multitudes of ambitious spirits, parents, "professors," and children, must be "humiliated" by this application of God's everlasting law that runs through the universe, and should be written over every school-house door: *Begin at the beginning; work from the known to the unknown; take no step in the dark*. The first condition of success in school work is to obey the law of the great Teacher: "Whosoever humbleth not himself and becometh as a little child, the same shall not enter the kingdom of heaven."

Of course, I teach no such nonsense as that the child in the elementary school shall be made a "thorough scholar" according to the test of the scientist. Science is not for "babes and sucklings." Rather does the true science of elementary education for children below the age of fourteen consist, first, in awakening the desire for knowledge; second, training the body, senses, and the faculty of observation to read the open book of nature; third, directing the youthful mind inward to a reverent study of human nature and self examination; fourth, showing the right way to use books and illustrations of knowledge; all the time working at the foundations of character that underlie all training of the mind, with constant regard to the "gentle manners" that are the finest flower

of wisdom and goodness. All this can be done by a skilled teacher with a very narrow course of study; embracing the few essentials of all mental growth. To read and write and use the mother tongue in simple, effective communication, with voice and pen; to know numbers, not alone as "figures," but in their relations to common things, for the great uses of common life; to hold a picture of the world we live in and its relations to the little patch of it which we inhabit and the infinite spaces in which it is only a floating speck of dust; to understand at least American history, with a rim of the chronicles of the rest of mankind; if possible, music enough to sing out the twang of the rod, and drawing enough, at odd moments, to untie the hand of the child; all the time with little lessons in nature knowledge and the fit care of the body, and "line upon line and precept upon precept" of true and good and beautiful behavior—here is a program that can be worked in a log school-house as effectively as in your State university by any competent teacher, *provided parents are willing their children should be children and school authorities insist on keeping things down to "hard-pan;"* for this beautiful way of teaching is so delightful to the children that, once in it, the old order is reversed, and they must be whipped to be kept away from school; and the wisest man who looks on would give all his honors to sit once more at the feet of that gracious schoolmistress as a little child.

I know just what I am saying. I fully understand that this is, by far, the most difficult problem in the new school life of the South. New England is still far behind it; the energetic West is only in the outer courts of the temple; but in every State I find a few schools that so beautifully illustrate it that I am sure the thing is possible, as all good things are possible, if men and women will only consent to unload themselves of pride, conceit, hypocrisy, and shams, and work honestly together in the love of God and man. But, easy or difficult, it matters not. Here is the everlasting law for the fit training of childhood and youth; and in God's law of human growth there is no "North and no South," no respect of persons, bond or free, white or black, great or small, but all must begin at the beginning, work from the known to the unknown, and take no step in the dark. Unless this can be achieved or some fair approach made thereto, our education of all grades will turn to dust and ashes in our hands, and a generation trained in shams will find its way to the solemn realities of American life only through new eras of buncombe, bankruptcy, and blood.

THE SECONDARY AND HIGHER EDUCATION.

Here will be found the practical solution of the vexed question of the secondary and higher education, over which too many of our anxious school men are talking themselves into a heat just now. Until this basis of all education is laid in the sensible and honest elementary instruction of the masses, there can be no higher education except for the favored few, and the secondary instruction will be a pompous "delusion and a snare." I am now talking, not of the high culture that may be found in the wilds of Siberia or the heart of Mexico, the exceptional appearance of genius and talent that everywhere looks out for itself, but of that education of the southern people which every true American desires—except an occasional member of Congress, for whom there seems too much reading, writing, and arithmetic abroad already. And I repeat that only after the work of a full generation, down in the deep places, among the common people, will our Southern States come to know the treasures that lie buried in both the races that inhabit their soil, like the beautiful new gem, hiddenite, first drawn out from the mysterious mountain sides of the Carolinas.

Ten years ago the parishioners of Phillips Brooks, in Boston, planned a magnificent church, worthy the fame and manliness of the great preacher. The money was raised, and Richardson, the Louisiana boy, now prince of Boston architects, was set to draw the plan. There came forth from his studio a noble pile, crowned by a massive tower that should overlook the city and float the song of chimes over among the Middlesex Fells, with sweet welcome to the sailor far out at sea. But, alas! this goodly temple must be

reared on piles, driven into the shaky ground of New Boston's aristocratic Back Bay. Before the foundations were half laid the disgusting piles began to wobble down. And, finally, the great architect was compelled to raze his plan, and leave out the lofty magnificence on which his heart was set. So the church is there, a wonder of ecclesiastical architecture, with the stump of the great tower shingled with tiles, waiting for the underworld of the Back Bay to "materialize" to solid ground. Even so do I find the noblest advocates of the higher education all up and down our Southland. No lack of bright boys and ambitious girls in every class or in either race; no special deficiency in excellent professors and university men; indeed, Harvard and Oxford and every wealthy northern university find the new South excellent recruiting ground for their most important chairs; but when the average pupil comes up to the academy the expert must too often face the problem that never yet was solved: how, with one hand, to reconstruct a false elementary education, and, with the other, build up the secondary and higher culture which the student desires.

At present, outside a score or two of cities in a region as large as Europe, all that can be reasonably demanded of the southern people is to keep up their State university, their agricultural and normal instruction for both races, and develop the summer institute into a permanent institution. It is practicable, in towns or cities of one thousand people, to organize a class of the superior students of both races, especially for training in the art of teaching; and this is important in towns where there is no good academy for boys and girls. But the true way, as I see it, in every considerable county town which already has an established academical school for boys or girls, is that these institutions should be reorganized for the proper work of secondary education in the true modern sense, divested of humbug, puff, and cram; as liberally endowed as home or outside generosity will warrant; filled with thorough teachers, and adjusted to take from the public graded school for white children all who really need superior schooling. Tuition can be made sufficiently reasonable, with occasional neighborly aid, to educate every promising child. Into these schools will be drawn an increasing crowd of pupils from the country, and in ten years every really good academy will be more prosperous and useful than ever before; for every little country school-house will be a feeder and the town graded school will make it possible for the academy to do solid and fruitful academical work and prepare the pupils for the college, which is now too often swamped in its academical grade, almost despairing of a real university life. This organization will serve the white people of the South for fifty years with an admirable system of education.

The same work is already being done for the colored folk in the excellent institutions planted in every Southern State by northern benevolence, in several States subsidized by the legislature, already one of the most powerful factors in the elevation of the freedmen. These great schools are growing in the estimation of all thoughtful southern men, and will become the final universities for the upper strata of the seven millions of the colored race. Of course, all this will come a good deal sooner if the teachers, patrons, and friends of the academies and colleges can be made to see that the people's common, elementary school is neither "godless," nor shiftless, nor a humbug in any way, when made the reality it now is in hundreds of southern towns and in many a favored spot in the open country. They will see that the people's common school is the best friend of the secondary and higher education, without which these will flounder on through constant failure, and come up cheerfully to its support.

THE FREE LIBRARY.

Every country school-house, every graded school, should *lay the foundation of a free library*, in a collection of good books and periodicals, for the children and youth of the neighborhood. Fifty volumes contributed by the reading families of a country school; a dozen good children's papers, passed in from village homes; a donation of good reading to the academy; a modern endowment for the college library, is practicable everywhere.

It will be of little use to teach the four millions of our southern children and youth to read, if they are turned over to the mercies of the dime novel, the Devil's Weekly, and the diabolical side of the daily press. Every steamboat that lands on a southern river port discharges a swarm of rats to plague the people, and many a railroad that penetrates its mountain recesses, or bridges its bayous, disgorges the more mischievous pest of vile reading, the vilest nuisance of metropolitan life. Now the only sure defence against a bad book or newspaper is to teach our children to prefer a good book and to stop the paper until it is clean. And this training of a general taste for good reading cannot begin too soon and is just as important as any other function of school life. The free library and superior journalism are the literary university of the mass of the American people; the complement of good preaching, lecturing, and public speaking of all sorts; a most vital part of that grandest of all human educational agencies, the University of American Life. Our wealthy southern men at home and those who go to manœuvre their millions in Wall street should be called upon to lay the foundations of good libraries where they can best be laid in connection with the school. And I would say to the northern philanthropist: Plant a generous library of good books in every growing southern community.

INDUSTRIAL EDUCATION.

I have but a brief space to give to the great theme of industrial education, now looming above our horizon, concerning which, just now, there is more flying of chaff with less outcome of wheat than on any threshing floor in America.

My conclusion on industrial education in the South runs about in this way. To-day, as I read the statistics of southern industry, I see that somebody is prodigiously at work in every corner of its broad domain, and think that stern schoolmaster, necessity, can be trusted, for the next generation, to wield a very sharp pitchfork about the waistband of every "lazy" southern man or woman, a method a good deal more effective than any schoolmaster's recipe of industrial education. I think laziness is not our natural vice and have little patience with the people who expect American children to get their own living or American boys and girls to shoulder the burdens that only belong to mature life. But I do see that the great lack to-day of the South is that general intelligence in several millions of its laboring class, of both races, which always, in this country, ultimates itself in more profitable, because better, more skilful and varied industries. The radical help for this lack is not what is sometimes called industrial training; but it is the thorough elementary schooling that will wake up the mind and train the faculty of the children of these illiterate and unskilled workers. The testimony of every civilized nation is to the effect that the final outcome of good schooling is a gradual expansion and uplifting of industrial life. The finest tool of all is the human mind, and the man who can take his own mind by the handle and turn it, in school boy phrase, "every which way," is the leader in every region of industrial no less than spiritual life. Book cramming does not make skilled workers. Sham teaching ultimates in an epidemic of "big head," with no corresponding growth of brain or skill of hand. But the blessed new education, the natural, divine, God's method of teaching and training the child, will send forth the southern boy and girl of a coming generation in a way that will make many a dead prophet of dismay in northern and southern graveyards turn in his coffin with supernatural surprise.

TECHNICAL AND ART EDUCATION.

Meanwhile, in every city, the leading class of women can establish schools for the training of servants, and, by discriminating in favor of the best, gradually get the southern household on firm foundations of skilled labor and domestic science in the kitchen. The State agricultural colleges can do anything the people need, as soon as the people understand that agriculture is as surely a science as chemistry and that country life in

the South can be made the most attractive, comfortable, wholesome, and truly refined of any land. Our colored universities should, more and more, become schools of skilled labor, and every graduate should go forth to become a missionary of skilled industry, wherever he lives or whatever he does. In every leading city the women's association for the encouragement of art should be pushed with vigor till it becomes a proper school for the female artisan, who will be needed before the present girls have passed the Rubicon of middle life. There are more than a hundred ways, all respectable, by which a girl in Massachusetts can earn an honest living, and thousands of Massachusetts women, including teachers, are said to be earning from \$1,000 to \$3,000 a year. The South is to grow in wealth and the demand for manufactured articles, for use and ornament, more rapidly every year. Why should not the multitudes of its young women, now longing for something profitable to do, be trained at home for this profitable work? Why should every western railroad groan under the army of its young men drifting from the older Southern States to the wilderness, while no country in the world gives fairer invitation to every form of useful and beautiful industry in the region of skilled activity? The colored people of the South have in them remarkable capabilities as operators and workers in ornamental manufactures, and the men who do not or will not see it seem to me like the farmer who turns his back on the expert who assures him that the hundred acres of his roughest land cover a mine of coal or iron that, fitly worked, will bring him out a millionaire. All this will come with the growing education of the masses. Why not let it come now for these people, and not wait for swarms of foreign-born workers to come in and reap the harvest that belongs to them? And with this will come a higher culture in music and literature and art; while the beautiful social life that has always been the pride of its upper class will gradually make its way downward and freshen and gladden and sweeten every southern home.

NATIONAL AID FOR EDUCATION.

Now, when I stand before a committee of Congress or an audience in Massachusetts or Minnesota, and say *The Nation should help the southern people in this mighty enterprise of building for 4,000,000 children and youth*, I speak in view of all I have said. I remember that in 1865 southern education was in the dust and that in 1885 its higher education will have been placed on its feet better than ever; the public school established in every State, for both races; in every State improving every year; and that, by the twentieth year from 1865, probably nearly \$20,000,000 will be expended by the southern people, of their own money, on building for the children. I ask the nation to help the southern people *because no people, under similar disadvantages, has done so big a job of helping itself*. I ask it because it is constitutional and in the direct line of public policy, from the foundation of the Confederation that preceded the Union. Every American State has received and used national money; the northwestern and southwestern States, millions on millions in land grants for education. Every State has indorsed the policy of national aid to education, over and over, by receiving and using such appropriations. The common school fund of Kentucky was founded on the surplus revenue distributed in 1836 by the General Government, as was the school fund, in part, of several of the States. The only "humiliation" in receiving such aid would come with the improper use of the money; and, after the lessons of two generations, I believe the southern people know how to apply money for the children. Of course, such aid should only be given for a time to stimulate, and not take the place of, home effort and should be distributed by each State according to wise legislation in Congress. I believe the people will demand national aid for education as soon as they know what it means.

THE FOUNDATIONS.

In this way alone, as I see it, can we dry up the sources of evil doing in our land. Every State, city, and county in this republic has under it an open slough, through

which the all-pervading national barbarism, home and foreign, that rolls its foul and festering subterranean tide from Maine to Mexico, disgorges its hideous malaria. I never lived in any city where that malaria of barbarism would not make "the whole head sick and the whole heart faint," unless every good man and woman and child was summoned to cast in disinfectants and toil and "pray without ceasing" to keep it down. I find, nowhere, a more devoted, God-fearing, and resolute band of God's minute men and women standing by this opening into hell than in every State and city in the South in which I have put my foot for the past four years. And I realize that one good way to shut off the fumes of the pit in Boston is to come down "to the help of the Lord against the mighty" in New Orleans. Every brave soul in New England stands more erect with every blast on the bugle-horn of Haygood and Curry. I know of no way to dry up the sources of every sort of folly and wickedness in our beloved land except God's original method to put a wise, good man in the place of every foolish, wicked man; to put a good mother into every family, a good minister in every church, a good teacher in every school. I believe the American people, North and South, are quietly but effectually getting out of the hands of little "statesmen," with their little patent right contrivances for "saving the country" by a few plank in an old platform or a new phrase in an old political resolution. The loud conflicts of parties and sects and classes, with all that makes for separation and hatred and disintegration, will still rage in the upper air; but, as the years roll on, the central, solid aristocracy of mind and soul and hand in this great country will find itself, through all disguises, and will "settle down" to the second century's work of building the new Republic on foundations that cannot be moved, while building for the children, in every school, in every church, in every home in this our beloved country, before all others favored of God, beyond all other nations the hope of good men around the globe.



DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION.

INTERNATIONAL EDUCATIONAL CONGRESS AT HAVRE.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, May 6, 1885.

Each summer a considerable number of American teachers visit Europe. The International Congress at Havre, France, September 6-9, 1885, may furnish many of them an opportunity to meet and compare notes with a large number of eminent European teachers. This program of the Congress is therefore printed for their information.

JOHN EATON,
Commissioner.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

INTERNATIONAL EDUCATIONAL CONGRESS AT HAVRE.

The municipal council of Havre, with the approval of the minister of public instruction, has determined to hold an international congress of instructors in that city September 6-9, 1885.

The reasons for this congress and the program of the different sessions are furnished by M. Garsault, inspector of primary instruction at Havre and general secretary of the committee on organization.

The idea of having a teachers' conference in Havre has been in the minds of the municipality for some time, yet up to the present time various causes have prevented the realization of the plan. But this year all things seem propitious and the municipal council welcomed the proposition of M. Siegfried, mayor of the city, as presented at the meeting held December 19, 1884. The mayor spoke as follows:

The system of uniting in a congress was inaugurated some time ago, and in almost every case this conferring together has produced favorable results. As applied to education such methods are eminently adapted to produce important changes in methods of instruction. Such a congress would be useful to all: to the children, the families, the instructors, even to the country, as education has for its object the improving of the mind. Thus it is the most necessary step toward human progress. It has been suggested that the city of Havre, from the very efforts it has made since 1870 in the diffusion of education, might well have the honor of being the centre of an educational reunion of this class. Therefore we propose an international congress of educators in 1885.

This proposition was well received and was embodied and sent to the committee on public instruction, which met several times and discussed the question. Its report, which was presented by M. Bazan January 7, 1885, was expressed in these terms:

The plan of a reunion of primary instructors can only be received favorably. If France up to the present time has not organized such reunions, neighboring countries—such as Germany, Belgium, Switzerland, &c.—have held such conferences with marked success. There is no reason why a like result should not be had in France. In the future teachers will group themselves together and hold meetings suited to their special needs and on their own responsibility. But at present it is well to take the initiative and organize, in the name of the city, a reunion which will doubtless bring about a more definite organization for future years.

The committee then suggested that the following propositions be adopted:

An international congress of primary instructors shall be held in Havre in September, 1885, under the patronage and with the moral and financial aid of the city.

A committee of 39 members, the mayor presiding, shall have charge of organizing this congress and of arranging the program.

These propositions were adopted.

This decision being reached the mayor took all necessary steps to make up the committee, the members of which, according to the expressed desire of the municipal council, were to be as follows: members of the council, 18 members from among the directors and directresses of schools in Havre, and 9 from among the citizens of Havre best known in connection with education.

The committee of organization is as follows: M. Jules Siegfried, mayor of Havre, president; M. Bazan, general councillor, president of cantonal delegation of the Canton of the North, reporter of the commission on public instruction, vice president; M. Couturier, academical inspector at Rouen, vice president; M. Garsault, primary inspector at Havre, general secretary; M. Périer, director of higher primary instruction, secretary.

The committee of organization is divided into three subcommittees: (1) Pedagogy and publications; (2) Routes, lodging, board; (3) Entertainments and excursions.

PRESIDING OFFICERS OF THE CONGRESS.

HONORARY PRESIDENTS.

M. Jules Ferry, president of the council, minister of foreign affairs. [M. Brisson is prime minister by decree of April 6, 1885.]

M. Fallières, minister of public instruction and fine arts. [M. René Goblet is minister of public instruction since April 6, 1885.]

HONORARY VICE PRESIDENTS.

M. Félix Faure, deputy, under secretary of state at the ministry of the marine and the colonies; M. Peulerey, deputy from Havre; M. Casimir-Périer, ward deputy of Havre; M. F. Buisson, councillor of state, director general of primary instruction in the ministry of public instruction; M. Hendlé, prefect of the lower Seine (Seine-Inférieure); M. Zevort, rector of the academy at Caen.

PRESIDENT OF THE CONGRESS.

M. Gréard, member of the Institute of France, vice rector of the Academy of Paris.

VICE PRESIDENTS.

Mr. A. J. Mundella, vice president of the committee of council on education, England; M. Couvreur, former vice president of the chamber of deputies of Belgium, president of the Belgian Congress of 1880; M. Numa Droz, member of the Swiss federal council; Dr. Friedrich Dittes, director of the Stadt-Pädagogium, Vienna; General Eaton, Commissioner of Education of the United States.

PROGRAM.

SUNDAY, SEPTEMBER 6, 1885.

2 P. M. Opening of the congress. Mayor's address. Addresses of ministers present. Addresses from foreigners present. Division of congress into sections.

4 P. M. Dedication of lycée for girls.

9 P. M. Music at the City Hall.

MONDAY, SEPTEMBER 7, 1885.

8 A. M. Reunion of committees in rooms designated.

2 P. M. New reunion of committees.

5 P. M. Reception to transatlantic visitors.

8 P. M. Pedagogical conference.

TUESDAY, SEPTEMBER 8, 1885.

8 A. M. Reunion of committees.

2 P. M. General session, discussion of reports.

8 P. M. Performance at the Grand Theatre.

WEDNESDAY, SEPTEMBER 9, 1885.

9 A. M. Visits to apprentice school for boys, to apprentice school for girls, to the higher primary school, and to an elementary grade for boys.

2 P. M. General session. Discussion of reports. Address of minister. Closing of congress.

7½ P. M. Banquet.

THURSDAY, SEPTEMBER 10, 1885.

8 A. M. Excursion on the water: Trouville, Honfleur, &c.

In order to bring about good practical results the subjects to be treated should be indicated prior to the opening of the congress.

SECTION A.

(1) The usefulness of national and international conferences of teachers.

(2) Manual training in primary schools as a complement to primary instruction. On the organization of professional and apprentice schools.

SECTION B.

Salaries of instructors and instructresses in different countries. What the state and the commune should be called upon to do for teachers.

SECTION C.

Normal schools. What they have to do with general education, and with the preparation of teachers, both male and female, for their profession.

GENERAL REGULATIONS FOR THE CONGRESS.

ARTICLE 1. All persons in any way connected with primary education are invited to be present, on showing tickets of admission. This includes teachers of either sex, assistants, &c., from both public and private schools of the primary grade, directors and directresses of normal schools, primary inspectors, and inspectors of schools generally.

ARTICLE 2. The congress is to be divided into three sections: Section A, to be presided over by M. Jost, general inspector; Section B, under presidency of M. Lenient, director of the normal school for teachers in Paris; Section C, presiding officer, M. Brouard, general inspector.

ARTICLE 3. At the opening session each section is to complete the number of officers by nominating a vice president and secretary.

ARTICLE 4. Business settled, the different sections will discuss the questions arranged for the session. No other subjects are to be treated either in that section or in the general assembly.

ARTICLE 5. No person is to be allowed to speak more than twice on the same subject, and the length of the address is not to exceed ten minutes each time.

ARTICLE 6. Addresses may be presented in a foreign tongue. In such case the gist of the paper will be reproduced in French.

ARTICLE 7. Members of the congress who desire to present papers are requested to notify the general secretary before July 15 of the subject of their papers and the conclusions arrived at.

ARTICLE 8. Such papers as cannot be read at the congress or in either section will be gathered together by the committee on organization, pedagogical section. The subjects will be classified, printed, and returned to each member at the opening of the congress.

ARTICLE 9. The conclusions reached in these papers will be discussed in the different sections, as well as any suggestions which may be made during the session proper. The result of such discussion will be reproduced in the form of resolutions which are to be presented to the general assembly by the reporter for the section.

ARTICLE 10. The committee of organization will designate the addresses, papers, &c., which are to be printed as a whole or in part.

In order to facilitate the movements of the instructors and others who desire to be present the following arrangements have been determined upon by the authorities at Havre.

GENERAL SUGGESTIONS.

(1) All persons mentioned in Article 1 who expect to participate in the conference will send word before July 1 to the general secretary at the City Hall of Havre. The committee on organization requests the members of the association to prepare a study of the questions suggested and begs the members to send in written minutes embodying the conclusions reached. It is necessary that each one have his ideas as fully matured as

possible, as upon such preparatory work depends the success of the congress. A card of admission will be immediately sent to each person in turn. These tickets of admission will be the means of giving reduced railway fares, as arranged with the railroad companies of France.

(2) The city of Havre will attend to the free lodging of the teachers and notify them in time as to the places designated. The instructors will pay for their food; but all information as to hotels, restaurants, &c., at reduced rates, will be furnished by the secretary of the congress at the bureau of information at the City Hall.

(3) The theatrical representation, pedagogical conference, excursion on the water, the banquet, &c., are all at the expense of the city.

(4) In case any teacher decides not to take part in the congress, he will return his card of admission.

(5) For all information, address the general secretary of the international congress, at the City Hall, Havre.

JULES SIEGFRIED,

Mayor of Havre, President of Committee on Organization.

GARSAULT,

Primary Inspector of Havre, General Secretary of the Committee.

BUREAU OF EDUCATION.

PLANTING TREES IN SCHOOL GROUNDS

AND THE

CELEBRATION OF ARBOR DAY.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

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NOTE.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, January 31, 1885.

In response to numerous demands made on this Office for information respecting tree planting and the celebration of arbor day, the following pamphlets are printed for general distribution. The first, by Dr. Hough, which originally appeared, in 1883, as a bulletin of the Bureau of Education, has proved very helpful to the numerous educators who have already received it. The second work, first published under the auspices of the Ohio State Forestry Association in 1884, is presented through the courtesy of Hon. John B. Peaslee, superintendent of the public schools of Cincinnati, by whom it was copyrighted and who kindly loans the plates.

JOHN EATON,
Commissioner.

PLANTING TREES IN SCHOOL GROUNDS.

BY

DR. FRANKLIN B. HOUGH.

DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION.

PLANTING TREES IN SCHOOL GROUNDS.

DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION,
Washington, April 9, 1883.

The advisability of adorning school grounds by planting shade and ornamental trees in the vicinity of the school-house has frequently been dwelt upon by educational writers and architects and has been more than once referred to in the publications of this Office. Abroad the subject has generally received a greater share of the attention its importance demands than in this country, and in Austria the taste and knowledge of pupils are developed by means of their own contributions in beautifying the school grounds through the planting and care of trees and shrubs. In several States of the American Union, however, there is a growing disposition among school officers to avail themselves of this effective means of culture and to foster a spirit in the community which will facilitate the operation of laws passed for the encouragement of tree planting and the protection of trees; in Connecticut, especially, the late energetic secretary of the State board of education, Hon. B. G. Northrop, inaugurated a movement which is improving the surroundings of schools in the rural districts almost beyond recognition, and in West Virginia the commendable efforts of the department of public instruction, under the direction of Hon. B. L. Butcher, have resulted in similar improvements. The work of Dr. Peaslee, city superintendent of Cincinnati, in the same direction, has also been especially successful.

Many considerations of an obviously persuasive character may readily be adduced to encourage the practice of tree planting, whether the subject be looked at from an economical, a sanitary, or an æsthetic standpoint, and in the excited interest with reference to this subject which characterized the centennial year they were vigorously urged and favorably received. Trees, moreover, are largely planted with a view to benefit posterity, and advantages may accrue that were not at all foreseen by the original planter. A striking illustration of this is afforded in the case of Evelyn's *Sylva*, published in 1664. Evelyn's efforts were mainly directed to introducing ornamental plantations into England, but they eventually resulted in supplying her at an opportune moment with the timber needed in the construction of the navy by means of which she maintained here supremacy at sea during the Napoleonic wars.

The writer of the accompanying letter, Dr. Franklin B. Hough, chief of the forestry division in the Department of Agriculture, is a gentleman whose unusual attainments and wide experience in the science of arboriculture peculiarly entitle him to be heard.

JOHN EATON,
Commissioner.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1885.

PLANTING TREES IN SCHOOL GROUNDS.

WASHINGTON, *March 27, 1883.*

SIR : Having been often asked for advice on the matter of tree planting upon grounds adjacent to school-houses and other educational institutions, I deem it proper to submit to you some suggestions on the subject which, if thought suitable, might be recommended by you to those having charge of the property of these establishments. Besides answering the inquiries now pending, and thus relieving me from the care of separate reply, the suggestions, supported by your recommendation, might lead to planting upon these grounds in many places where the intention had not previously been entertained, and the benefits as well in the direct effect secured from actual plantation as indirectly in the cultivation of a taste for rural ornament and homestead improvement might be assured.

GENERAL CONSIDERATIONS.

There are some points to be considered at the outset which apply to all situations and to every case that may arise. Trees planted adjacent to school-houses, academies, and the like will be exceptionally liable to injury from the thoughtless or possibly the malicious acts of children, to prevent which they must be carefully taught the necessity of letting them alone; and incidentally they should be told how important it is, not only with the trees that may be set upon their school-house grounds, but upon plantations generally, whether for ornament or profit, that they should be guarded from injuries of every kind.

There is perhaps no injury to which trees in front of a school-house are more exposed than that of being wounded or broken down through use as hitching posts for horses. To prevent this, there should be provided a sufficient number of strong posts for this use; and as a further protection there should be a bar outside of the outer line of trees and a separate guard around every tree, at least until the trees have grown to a size that will render this protection no longer needed.

In starting groves of trees, it is sometimes cheaper to sow or plant the seeds where the trees are to remain; but in no case will this be possible in the plantations we are considering. The trees used must be first started, and should be grown to as great a size as practicable before they are set. To secure success they should be selected from nursery plantations or from those that have sprung up in open places, such as the seedling trees along fences, so that there may be an abundance of the small fibrous roots. Without this precaution they will be very liable to fail. It should be further borne in mind, that if the roots are much exposed to the sun or to a cold or drying wind their vitality may be soon lost. Great care should be taken, if they are brought from an adjoining place and planted immediately, to retain as much soil among them as possible, and to prefer a damp and cloudy day. By placing the roots of the trees as soon as they are drawn from the ground upon a coarse strong sheet of canvas, and binding this around them, this object may be best secured. Straw or moss, a little dampened, will serve this purpose very well, and sometimes the trees may be set in a box or barrel with some of the better soil in which they grew, for their removal. Sometimes trees can be removed in winter with great advantage by digging a trench around them in the fall and allowing the earth to freeze, so that a disk, including the tree and its roots, may be removed entire.

It should, however, be remembered that the transplanting of large trees is a difficult, uncertain, and expensive process, and that as a general rule, for the plantations under notice, the largest size should not exceed two inches in diameter. Trees of half this thickness would be much less likely to fail, and would in five years probably outgrow the larger ones, but they would need a little more protection at first and might not be as much respected as their "big brothers." If of the larger size, they might need bracing with wires to prevent them from being swayed by the winds until their roots are well started. The greatest care should be taken to prevent the wires from cutting into the trees, by placing blocks of wood around the places where the wires are fastened, and by providing that the growth at that place is not too much obstructed while they remain. In taking up a tree we should avoid cutting off the large roots too near the trunk. They should be carefully followed out to a convenient distance, and in setting them again, they should have space enough provided without bending them. Besides the gain in nutrition thus secured by the tree, we have by this means an additional security in the bracing and support secured by a broad base and steady "anchorage." The ends of broken roots should be cut off smooth before the tree is planted.

The holes for the trees should be always made before the trees are brought on the ground. They should be somewhat larger and deeper than those needed in common planting on private lands, because it is desirable to give the trees the best possible opportunity at the start. The surface soil, being generally the best, should be thrown up on one side, and the poorer soil from below on the other. In filling in, the better soil should be returned first, so as to be nearer the roots. In hard clayey soils great advantage is gained by digging the holes in the fall, so that the earth may be exposed to the weather through the winter. The holes might be loosely covered with boards when necessary. If the soil be somewhat sterile, a wagon-load of rich loam, compost, or wood's earth, placed below and around the roots, would be the cheapest means for insuring success. In applying manures care should be taken that they be placed below and near, but not in contact with the roots. In setting the tree it should be placed a trifle deeper than it stood before, the roots should be spread out so that none are doubled, and fine rich soil should be carefully sifted in among them so as to fill every space. Sometimes the roots are dipped in a tub containing a thin mud of rich soil before they are set. In any event, unless the soil is evidently damp enough, the trees should be well watered as soon as they are planted, and this process in dry seasons should be repeated from time to time through the first and second years. If it be a very dry soil, this watering should be continued longer, and this is a service that can be assigned to the scholars with great propriety, but should not be overdone. The soil should be pressed down around the roots to give them a firm hold. In the light porous soil of the prairies it can scarcely be too firmly trodden down, as well at the bottom of the holes before setting, as on the top after the tree is planted. The surface should not be rounded up around the trees, at least no more than to allow for settling, and the tree, when well established, should have the soil around it on the level or, if anything, a little below the general surface. In shovelling paths in the snow, it is well to heap it up around the trees in winter, to prevent them from starting prematurely in spring.

The fresh surface around a newly planted tree, if in a dry climate, should be mulched by a covering of straw, leaves, or of wood chips, the last being always a proper surface-dressing around young trees. If the soil is not otherwise covered as above, it should be kept free from weeds and grass until the trees are well started, and it should be prevented from baking by occasionally raking or hoeing the surface lightly, especially in a dry time. If the grounds are naturally wet, they should be properly drained. In exceptional cases, where irrigation is possible and the soil and climate are of the arid type, this may be the only means for making trees survive.

In taking up a tree for transplanting, a part of the roots will necessarily be left in the ground. It is in many cases necessary to shorten the branches, so that a due balance

may be maintained between the foliage and the roots, for as a rule the trees with most vigorous tops are best supplied with roots. It will be necessary to trim off the side branches of trees planted for ornament around school-houses, until the tops are carried above reach. It is often proper with larger trees to afford some shelter to the trunks thus exposed to the sun, by binding straw around them or by placing a board as a screen on the south side.

WHERE TO PLANT.

It is needless to remark that a school room needs an abundance of fresh air and sufficient light. The trees planted upon the grounds around it should therefore stand far enough away to allow a free circulation of the air, although they might when grown afford a grateful shade. As a general rule, even in the smallest grounds, a row of trees may be planted in the street, six or eight feet from the fence line, but always protected by guards and hitching posts, as already noticed. In small lots the corners only might admit of further planting; but with wider opportunity we may gain some effect from the grouping of trees, and upon still more ample premises, such as should always belong to academies and colleges, we may with great profit attempt the cultivation of trees in considerable variety with the view of securing a pleasing combination of views and object lessons in sylviculture. If there be outbuildings, they should be invariably screened by trees, and if there be an adjoining marshy spot, it should be covered with trees or bushes suited to the conditions.

It may sometimes happen that the owners of the adjoining lands may be willing to plant the roadsides leading to the school-house with an avenue of trees, or they may consent to this being done by those interested in the school grounds under improvement. It is always very desirable to enlist the children of the school in these operations, by their assistance in the planting and their care afterward. Where certain trees are assigned to particular scholars or to little committees to whom their protection is intrusted, the interest thus secured would not fail to produce the happiest effect. The trees might be named in memory of some person or some event worthy of remembrance, and the associations thus created would not fail to recall the pleasant associations that happy childhood is sure to impart to after life.

As to the intervals between the trees planted in lines, something will depend upon their kinds and upon the soil, exposure, and other circumstances of the place. As a general rule, in grove and forest planting, a great many more trees must be started than we expect or wish to have grow to full size, and they must be thinned out from time to time as they become crowded. We thus secure high and uniform bodies to the trees, without the need of side pruning. But in the case of trees in avenues, we cannot do this, excepting by sometimes taking out alternate trees. It is sometimes the custom to plant for more immediate effect the alternate trees of some rapidly growing kind, which tend to make the others grow higher, as, for example, poplars and elms, the former being taken out when they are no longer wanted. From fifteen to twenty feet will generally be found a proper interval; but in the case of those with wide spreading tops thirty feet should be allowed.

Before leaving the subject of methods in planting we should not fail to condemn a practice that has been followed in certain irrigated districts in the far West, in which poles of cottonwood, without root or branch and sometimes large enough for telegraph poles, have been set along streets and have grown to become trees. In fact, poles set for telegraph use have thus budded and grown like Aaron's rod where trees were not expected or desired. Such trees, however, become hollow in a few years, and are short lived. The reason is obvious; for the branches are put forth at some distance below the top, which dries up and rots off, leaving a hole open to the rains. The lower end gives off roots around the edge and sides, but the middle part soon rots from the absorption of water until a hollow space is formed from one end to the other. A small tree would outgrow such a pole in a few years and survive half a century after it was dead and forgotten.

WHAT SHOULD WE PLANT?

In a country extending over such a length and breadth as the United States, no general answer could possibly be given to this question, further than this: as a rule we should select, especially for small grounds, the species that grow naturally in the region about and which were found to be most hardy and certain when transplanted. The deciduous species would almost always have preference, except upon grounds of ample size, in which groups and masses of evergreen trees might appear to fine advantage among those that shed their leaves in autumn. There is one situation, however, in which a screen of evergreens would be very generally proper, viz, for the concealment of outhouses and other unsightly premises. For this use the arbor vitæ, Norway spruce, or red cedar in the North, or the vines with evergreen leaves in the South, would be most appropriate. It might sometimes be worth its cost for a neighbor to plant such a screen upon his own side of the fence, along the line of the school-house lot, and this could scarcely fail of proving a welcome addition to plantations upon the public premises adjacent.

In selecting the kinds of trees that should be planted regard should be had to their liability to injury from accident, their tendency to sprout where not wanted, the agreeable or disagreeable odors that they may emit, the ornamental character of their flowers or fruit, their longevity, rate of growth, and other circumstances tending to make them more or less acceptable in the places where they are to remain. It is scarcely worth while to consider the value of their wood, as trees in such places would scarcely ever be cut until they were passing to decay.

Taking up the points of excellence or of disadvantage in the order above mentioned, we will state some considerations that deserve notice under each:

1. *Liability to injury from accident.*—The part most liable to injury is the bark, and wherever any part of this covering is bruised or broken off the wood underneath dies. The wound is only healed by growing over on the sides, and years may be required to repair an injury that can never be entirely made good in the wood within. While most trees are more liable to injury while they are small and all of them are more easily peeled in early summer while the new layer of wood is forming, there are some that acquire greater immunity with age than others. Of all the native trees of the Northern States the American elm (*Ulmus Americana*) is perhaps least liable to accident from a bruise upon the bark; and there are few if any that should be more generally preferred. It carries its shade high above the level of our windows; it is seldom broken or thrown down by the winds; it lives to a great age and grows to a large size, and it presents a majestic and graceful outline as agreeable to the view as its spreading canopy is refreshing in its shade. The red or slippery elm might be liable to be peeled by unruly boys, for its inner bark, and should for this reason be planted only upon private grounds.

The maples are justly prized as shade trees, and the sugar maple (*Acer saccharinum*) may perhaps be placed first on the list, as affording a dense shade and a graceful oval outline; but as we go west its growth becomes slower, until it ceases to be desirable as an ornamental tree. Of the soft maples (*Acer rubrum* and *A. dasycarpum*), the former is noted for its bright red blossoms and the latter for the lighter color on the underside of the leaves and for its very rapid growth, but it is easily broken by the winds and in some localities is liable to injury from borers. Both of the soft maples ripen their seeds early in the season, and should be sown the same year. All of the maples are conspicuous in the declining year from the bright coloring of their autumnal foliage. The box elder or ash-leaved maple (*Negundo aceroides*), a nearly allied species, is a favorite shade-tree in the Western States, and grows well in the middle latitudes of the Atlantic States, but does not endure a cold climate.

The poplars and the cottonwoods (all belonging to the genus *Populus* and forming many species) grow rapidly, and some of them where other trees can scarcely be made to thrive. The tall columnar Lombardy poplar can scarcely be recommended, excepting in the

background, to relieve the monotony of other trees. It grows very rapidly, but is short-lived. The beech, birches, catalpa (of the hardy species), oaks, linden, hickories, walnuts, locust, sycamore (or American plane tree), chestnut, ash (of several species), mountain ash, buckeyes, tulip-poplar, and many other trees afford advantages more or less worthy of notice throughout the Northern States, while in the Southern and Pacific States there is a wide range of choice among a great number of native species.

In wet places, the willows, alders, American larch, black ash, and some of the oaks find an appropriate place, and we should not fail to especially commend the gray willow as particularly valuable as a wind-break in the Northwest, where a screen of this kind around the border of a school-house lot would prove a luxury in winter as well as a joy in summer, even if there were no other plantation upon the premises. It does not require a wet soil, like some of the species; it grows well from cuttings, without roots, that are simply stuck into a soil well prepared, and it grows rapidly in regions where many other trees cannot be made to live.

2. *Tendency to sprout.*—The poplars, willows, locust, ailantus, and some other kinds of trees have the habit of sending up sprouts from their tracing roots at some distance from the trunk. In tracts reserved for timber growth there is no objection to this; in fact, it becomes a valuable means for their reproduction; but in ornamental plantations it becomes a nuisance that should sometimes be avoided. The first two of these are particularly liable to fill water pipes and wells with their roots, and they will sometimes insinuate themselves into the crevices of walls, and tend to weaken the foundations of buildings, or to start a leak in aqueducts, by the expansion of their roots.

3. *The odors emitted by trees.*—The ailantus is known to have a sickening odor when in blossom. Many trees are perceptibly fragrant when in blossom. The pines emit a resinous and the eucalyptus a balsamic odor, which is reputed to be healthy and to most persons is agreeable.

As to the other qualities of ornament, in flowers and fruit and the like, there is an unlimited range of choice, and there are few sections of the country within the inhabited regions that do not present opportunities for cultivation well deserving of notice.

WHEN TO PLANT.

As a general rule, trees succeed best when planted in spring. It is a common remark that the "season for planting corn" is a proper time for planting generally, and it is not far from the truth. In some sections, however, fall planting has preference, and in large operations about a month in spring and another month in fall are given to the business. In the case of deciduous trees it may be broadly stated that they may be transplanted with more or less certainty at any period between the fall of the leaves in autumn and the appearance of leaves in spring. With the coniferous evergreens the most vigorous time of growth—just after the buds have started—is preferred. In cases where the young trees are set from pots or boxes without disturbing the soil about the roots, they can be set in the earth at any time when the ground is not frozen, but do best when planted in spring.

ARBOR DAY.

In several of the Western States they have what is properly named an "arbor day," sometimes appointed by law and at other times designated by other authority or fixed upon by agreement, to be wholly devoted to the planting of trees. It is a pleasant and highly commendable custom, and has but the single disadvantage of sometimes happening on a day that proves stormy. If such an accident happens, the next pleasant day should be devoted to the business, and in all cases the holes should be all previously dug, so as to expedite business and secure the largest possible result. In cases where trees are dug up and their planting is delayed from any cause, as will sometimes unavoidably happen where they are sent from distant nurseries, the roots should be "heeled in" by placing them in trenches and lightly covering them with soil. In every case it is a good plan to keep the roots covered from the air as much as possible while out of the ground, using cloths, straw, hay, dead leaves, moss, soil, or any other covering most convenient.

AN ARBORETUM.

An arboretum is a collection of living trees, planted in as great variety as the soil and climate will permit. The trees should be placed in groups, so that the oaks, maples, birches, pines, spruces, firs, cedars, &c., may be adjacent, generally one of each species and sometimes in great variety, for in most of the cultivated trees many variations from the original form have been produced by accident or have appeared under cultivation. A variety, or "sport," may be propagated without limit by grafting, budding, or layers, but never forms a separate species. In other cases hybrids are produced by accidental cross-fertilization, but both hybrids and varieties, where they bear seeds, tend to produce plants of the original types.

No institution of learning in the country, having grounds sufficiently ample, should be without plantations of this kind, which should always be labelled with their botanical and common names. They are also of first importance in city parks and public grounds, and it is to be earnestly hoped that at no distant day they may be found wherever there is opportunity in these places.

COLLECTIONS.

There is no school-house in the country, whether in city and village or rural district, which might not have at slight expense an interesting collection of the native woods of the vicinity. These specimens should be prepared by having one or more faces planed and polished or varnished to show the grain of the wood when worked to best advantage, and another face simply planed and left in its natural color. There should be some portion of the bark, and it would be still better if there were shown in connection with the wood dried specimens of the leaves and blossoms, the fruit, and the resinous or other products. Such collections made up by the scholars, and correctly labelled, under the care of the teachers, would become object lessons of first importance as an agency for instruction. They would afford the most profitable kind of employment for the leisure hours, and might awaken a love of close observation and a thirst for further knowledge that would ripen into the best of fruits.

CONCLUSION.

I have thus briefly touched upon some of the points that might be properly noticed under the head of planting upon school lots and the cultivation of a taste for rural ornament. The subject would bear ample enlargement, and it may be that the points here presented will lead to further thought in those who may read these pages.¹

In the presence of our rapidly wasting supplies, it must be evident to every sensible person that something should be done to economize what remains of our native forest products, and to provide by seasonable planting for future wants. It should be held as the duty and the privilege of those having charge of our public schools to set an example worthy of following by the planting of their grounds for the effect it may have upon those under instruction, aside from the amenities that they thus secure to their premises. The scholars now in their schools will in a few years be the owners of the lands around them, and since all our lands in most of the States belong to private owners, upon them will devolve whatever duties the necessities of the future may impose in the way of planting for the supply of future wants.

Respectfully yours,

FRANKLIN B. HOUGH,

Chief of Forestry Division, Department of Agriculture.

Hon. JOHN EATON,

Commissioner of Education.

¹ Fuller expression of Dr. Hough's views will be found in his various reports on forestry, published by the Department of Agriculture; in the *American Journal of Forestry*, a monthly published by Robert Clarke & Co., of Cincinnati, which he edits; and in the *Elements of Forestry*, a manual, also published by Clarke & Co. — COMMISSIONER.

TREES AND TREE PLANTING,
WITH EXERCISES AND DIRECTIONS FOR THE
CELEBRATION OF ARBOR DAY.

PREPARED BY

JOHN B. PEASLEE,
SUPERINTENDENT CINCINNATI PUBLIC SCHOOLS,

WITH A PREFACE BY

WARREN HIGLEY.

OFFICERS
OF THE
OHIO STATE FORESTRY ASSOCIATION
FOR 1884.

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PREFACE.

THE subject of this little pamphlet is one that is rapidly rising in favor with the business community and the political economists. From the attention that has been given it by the press, and the facts disseminated by societies like ours, the thoughtful, intelligent citizen who studies the causes of the decline in national resources—how countries once famous for their fertility of soil and salubrity of climate and dense population have become desolate wastes, unfitted for the habitation of man—how some countries have checked the rapid tendency to such desolation and ruin, and recovered their former prosperity—will see that the forests played the most important part in these causes; that their denudation was followed by the decline, and then the destruction of the national resources, while their replanting resulted in reclaiming, and in renewed production. The various and immediate uses to man of trees and their products have caused their rapid destruction, until the threatened dearth in this country is becoming alarming. This can be avoided only by convincing those who are most directly interested of the undeniable facts, and thereby inducing the people to better protect existing forests, and to take early steps to plant new ones for the benefit of themselves and of future generations.

In a country like ours, where the *people* own the land and where the farmer has to look to the products of the farm for his income, it is a question with him of *profit* as between the wood-lot and the cleared field, whether the wood shall remain to supply the fuel, the fence and necessary timber for home purposes, or whether it shall give place to the corn-field, the wheat-field, or the meadow. With good tillable soil, the *profit* is, no doubt, largely in favor of the open field, especially as compared with our native forests from which the most valuable trees have been culled, and only wood of an inferior quality left. But the result would be quite different with a forest planted and cared for according to the principles of forestry as practiced in Germany and France, as conclusively appears in the following pages. There is, however, scarcely a farm of a hundred acres in Ohio and the originally wooded States, but that from 20 to 25 per cent of its surface can be more profitably devoted to tree culture than to any thing else. In fact, there is much of the best farming country that is useless for crops, as the farmer knows, and yet is well adapted to the growth of trees. These comparatively useless tracts should be planted to the right kind of trees, and the whole farm thereby made productive, while the influence of such planting and nurture, in beautifying the landscape, in rendering the country more salubrious,

land and render life far more enjoyable.

The importance of forestry has been recognized by the governments of Europe for more than a century past. Schools of forestry have been established, and its principles reduced to a science. These are the result of necessity. The widespread destruction of the forests so affected the climate and productions of the soil, and the wants and the manufacturing interests of the people, and the wealth and prosperity of the nation, that the governments were forced to legislate and prevent the threatened destruction which was found to surely follow the complete denudation of the forests. The most wholesome effects have resulted wherever a system of forestry has been introduced and followed. Unhealthy regions have been rendered salubrious; floods have been modified and partly controlled; crops have been rendered more certain; vast areas of waste-lands have been forested and rendered productive in wood and timber, whereby large revenues have been realized, and important interests subserved.

I know of no facts more convincing of the necessity for attention to forestry in this country than those found in our last census report, from which I take the following figures:

PARTIAL ESTIMATE OF THE CONSUMPTION OF FOREST PRODUCTS AS FUEL IN
THE UNITED STATES DURING THE CENSUS YEAR
ENDING MAY 31, 1880.

Number of persons using wood for domestic fuel, 32,375,074

ESTIMATED CONSUMPTION OF WOOD FOR DOMESTIC PURPOSES.

Number of cords for home use,	140,537,439	Value, \$	306,950,040
By railroads,	1,971,813	"	5,126,714
By steamboats,	787,862	"	1,812,083
In mining and amalgamating the precious metals,	358,074	"	2,874,593
In other mining operations,	266,771	"	673,692
In the manufacture of brick and tile,	1,157,522	"	3,978,331
In the manufacture of salt,	540,448	"	121,681
In the manufacture of wool,	158,208	"	425,239
Total,	145,778,137	"	\$321,962,373

CONSUMPTION OF CHARCOAL.

In the twenty largest cities—Bushels,	4,319,194	Value, \$	521,316
In manufacture of iron, "	69,592,091	"	4,726,114
In the production of precious metals,	97,687	"	29,306
Total,	74,008,972	"	\$5,276,736

In this table Ohio is estimated to consume for domestic purposes, exclusive of what is used in manufactures, 8,191,543 cords of wood, with an estimated value of \$16,492,574. Allowing an average yield of forty cords to the acre, it requires 204,788 acres of forest to supply the demand in this State one year for fuel alone.

The following are some of the statistics of the lumbering industry of the United States for the year ending May 31, 1880:

Capital employed,	\$181,186,122
Number of hands employed—Males,	141,564
Females,	425
Children and youth,	5,967
Value of logs,	\$139,836,869
Wages paid during the year,	31,845,974
Feet of lumber (board measure) produced,	18,091,356,000
Number of laths,	1,761,788,000
Number of shingles,	5,555,046,000
Number of staves,	1,248,226,000
Number of headings,	146,523,000
Feet of spool and bobbin stock (board measure),	34,076,000
Value of all other products,	\$2,682,668
<hr/>	
Total value of all products,	\$233,367,729

The lumbering interest of Ohio for the year ending May 31, 1880, is estimated as follows:

Capital invested, \$7,944,412; number of hands employed, 15,277; value of logs, \$8,603,127; wages paid during the year, \$1,708,300; feet of lumber (board measure), 910,832,000; number of laths, 50,625,000; number of shingles, 24,875,000; number of staves, 214,245,000; number of sets of headings, 25,779,000; value of all the lumber products of Ohio (estimated), \$13,864,460. This, added to the estimated value of wood used for domestic purposes—to wit, \$8,191,543—gives a total value of the product of the State for the census year of 1880, \$22,056,003; and this consumption is rapidly increasing through the demands of our growing population.

A comparison of the census returns of 1870 and 1880 shows a decrease of wood lands in the belt including latitude 37 degrees to 40 degrees, through which runs the Ohio River, extending westward across the Mississippi River, of from 34 to 26 per cent, being greatest in Ohio and Indiana.

At the meeting of the Forestry Congress in Cincinnati, April, 1882, Dr. Franklin B. Hough, then chief of the Forestry Department, read a valuable paper on "Tree Planting by Railroad Companies," in which he says:

"We have in the United States about 100,000 miles of railroads. The number of ties to a mile range from 2,200 to 3,000, and in some cases as high as 3,500. If we assume an average of 2,500 to the mile, we have a quarter of a billion in use. They average eight feet in length, and about seven inches deep and eight inches wide, giving the contents of almost three cubic feet apiece, or in all 6,000,000 of cords. If piled cord-fashion, they would form a pile four feet high, eight feet wide, and 4,575 miles long. Placed end to end, they would span the earth fifteen times at the equator, or in one line would reach miles beyond the moon. Taking the average life of a tie at from five to eight years, and we shall need from 30,000,000 to 50,000,000 new ties a year for maintaining the present railroads of the country in constant use. Allowing 500 ties to the acre, we shall need to cut from 60,000 to 100,000 acres every year to meet this demand. To grow trees to the size necessary for ties will require an average of about thirty years, and we shall need, to keep up this supply, nearly 3,000,000 acres of forests, or about

of woodland twice the size that now exists, and
times the right of way."

In a recent article on the condition of our forests and their effect upon the floods of 1883 and 1884, Dr. Hough says:

"Let us now see how these forest supplies stand, and how the future promises, with regard to their continuance in the United States. We have as our only data the census of different periods; and the returns of 1880 show that, of our States and Territories, 9 had reduced their woodlands to below 10 per cent; 5, to between 10 and 20 per cent; 8, to from 20 to 30 per cent; 11, to from 30 to 40 per cent; and 4, to from 40 to 50 per cent, when this census was taken. In 10 States of the South and South-west the proportion was 50 per cent or more, and in the whole United States the woodlands occupied 35 per cent of the whole reported area.

"In Ohio the returns made by assessors (which appear to be very reliable) show the tendencies of clearing in a very strong light, and taking three periods for comparison we get the following results:

	Acres of woodland.	Decrease from former period.	Percentage of woodland to total area.
1853	13,991,228		55.27
1870	9,749,333	4,241,895	38.51
1881	4,708,247	5,041,086	22.71

"In 1881, 601,136 acres, or about 3 per cent (not included in the woodlands), were lying waste.

"The amount of clearing, from 1870 to 1881, is shown to have been 5,041,083 acres, and at this rate it becomes an easy question to solve as to how long the remaining 4,708,247 acres will last. We have not figures to prove that these rates of clearing have been going on in the other states bordering upon the Ohio river, or supplying it by their drainage; but the connection between this denudation and the floods of the present and of recent years can not be mistaken. Last year the damages were estimated at \$60,000,000. There may have been less damage done this year (although the flood was five feet higher), because there was less property to destroy. In a letter from a friend in Marietta we are told that four hundred houses floated past that place in the recent flood, which probably took off many that were not reached by the waters before.

"Nine years ago a million of dollars or more of property was destroyed at Rochester by a flood unquestionably occasioned primarily by the extensive clearings in recent years around the head waters of the Genesee River. The heavy rains and warm winds, which rapidly melted the snows and supplied the floods on that occasion, could not have had so immediate an effect in a wooded country.

"Passing from Winter floods, we find the other extreme in Summer droughts, which in recent years have become more frequent and distressing than were known in former years, and both may be traced unerringly to the same cause—the clearing-off of the woodlands which formerly tended to equalize these extremes and maintain a more uniform flow of waters throughout the year."

THE OHIO STATE FORESTRY ASSOCIATION.

THE origin of the State Forestry Association, together with a brief history of the popular movement that led to its organization, may be of interest in this place.

In November, 1881, a public reception was given by the citizens of Cincinnati to the von Steubens, while on their visit through the country, after having taken part in the centennial celebration of the

battle of Yorktown. Among them was Baron Richard von Steuben, the Royal Chief Forester of the German Empire, who made a most favorable impression upon those with whom he came in contact and deeply interested them by his talks on forestry.

In the early part of January following, a few of the gentlemen* who had been most active in this reception, met in my office and discussed, among other things, the duties of the Royal Chief Forester of Germany and the subject of forestry in general. The more we discussed the greater the interest became, and the more apparent it was that a popular movement should be inaugurated to bring the subject to the earnest consideration of the people. Before we separated it was resolved to call a meeting of some of the public-spirited citizens and put the ball in motion. Accordingly a committee was organized, and for the next three months the press of the country laid before the people the subject of forestry in its various important aspects.

The work of the committee culminated in a three days' meeting at Music Hall, April 25th, 26th, and 27th, at which most of the distinguished foresters of this country and Canada were present and read papers before the scientific department. The excellent programme for this meeting at Music Hall was prepared principally by Dr. John A. Warder, and Prof. Adolph Leué. Governor Foster made the address of welcome. The public schools were dismissed on the 26th and 27th to enable the teachers and pupils to take part in the celebration of tree-planting in the public parks. The 27th had been appointed as Arbor Day by proclamation of the governor. Extensive preparations had been made for its appropriate celebration in Eden Park. The city was in holiday attire. The soldiery and organized companies of citizens formed an immense procession under command of Col. S. A. Whitfield and marched to the park, where the command was turned over to Col. A. E. Jones, the officer in charge. The school children were under the charge of Superintendent Peaslee. Fifty thousand citizens covered the grassy slopes and crowning ridges, those assigned to the work of tree-planting taking their respective places. At the firing of the signal gun, "Presidents' Grove," "Pioneers' Grove," "Battle Grove," "Citizens' Memorial Grove," and "Authors' Grove," were planted and dedicated with loving hands and appropriate ceremonies. Addresses were made by ex-Governor Noyes, Dr. Loring, Cassius M. Clay, Gen. Durbin Ward, and others. No sight more beautiful, no ceremonies more touching, had ever been witnessed in Cincinnati. An important lesson in forestry had, indeed, been brought home to the hearts of the people, and a crown of success was awarded the American Forestry Congress. This was the first Arbor Day celebration in Ohio. And thus closed the first session of the American Forestry Congress, which embraces in its scope the United States and Canadas.

In January, 1883, the Ohio State Forestry Association, the out-

* NOTE.—The gentlemen present at this conference were Col. W. L. De Beck, Rev. Dr. Max Lilienthal, Supt. John B. Peaslee, Hon. John Simpson, the first president of the Association, Col. A. E. Jones, and Hon. Emil Rothe.

growth of the American Forestry Congress, was organized. The organizers were Dr. John A. Warder, Prof. Adolph Leué, Col. A. E. Jones, Hon. John Simpkinson, Supt. John B. Peaslee, Gen. Durbin Ward, Hon. Emil Rothe, Hon. Leopold Burckhardt, D. D. Thompson, Prof. R. B. Warder, Prof. Adolph Strauch, Dr. A. D. Birchard, Hon. Charles Reemelin, Prof. W. H. Venable, Dr. W. W. Dawson, John H. McMakin, Esq., myself, and perhaps a few others. The work of the previous year was largely repeated. A convention was held in April, at which many valuable papers were read, some of which were printed in full in the daily papers.

By authority of a joint resolution adopted by both branches of our State Legislature, Governor Foster issued his proclamation, appointing the fourth Friday in April as Arbor Day, which was the last day of our convention. Accordingly, our association had made extensive preparations for its celebration in Eden Park by the citizens and by the public schools.

I can give no better idea of this second celebration of Arbor Day in Cincinnati than by quoting from an article that appeared the following morning in one of our leading journals:

"The east ridge of the park was thronged with the associations planting tablets to the memories of the Presidents of the United States, the heroes of Valley Forge, and the pioneers of Cincinnati in their respective groves, while the northern projecting slope of the ridge was occupied by fully seventeen thousand school children in honoring 'Authors' Grove.' Viewed from the summit of the ridge immediately west, the sight was one of the most animating ever brought before the eyes of Cincinnatians. The entire ridge, nearly a third of a mile in length, was occupied by those persons taking part in the first-named ceremonies, while the slope designated was occupied by a dense mass of gayly dressed children in active motion over a surface of about five acres, and whose voices, wafted across the deep hollow to the western ridge, sounded like the chattering from a grove full of happy birds. The eastern slope of the west ridge was occupied by three thousand or four thousand spectators, who, reclining on the green Spring sod of the grassy slopes, quietly surveyed the scene from a distance. In all, there were over twenty thousand persons present. Before the exercises commenced a number of interesting photographic views were taken of the immense crowd, and others were taken after the children of the various schools had formed their circles around their respective trees along the slope of Authors' Grove, and they formed a picture of twenty-five or thirty circles of humanity around the young trees, with the populace massed between. Over in the center of the east ridge was the speakers' stand, with a tall staff bearing the national colors rising from the center, while smaller flags marked the trees dedicated to each author. The trees and tablets in all the various groves had been previously planted, so that yesterday was but a dedication day of the planting. The grove to the honor of Cincinnati pioneers had been planted by the association, and yesterday the tablet was laid to their memory. All the tablets were of uniform size and construction, each being of sandstone, twenty-four by thirty-six inches surface, and eleven inches depth. That for the Cincinnati pioneers contained at the upper center a figure of the primitive log-cabin, and the following inscription, 'Planted and Dedicated to the Memory of the Pioneers of Cincinnati by the Forestry Society.' Below were cut the names of the pioneers.

"'Presidents' Grove' bore a tablet with the following inscription: 'Presidents' Grove, Planted and Dedicated to the Memory of the Presidents of the United States, by the Forestry Society, 1882, Cincinnati, April 27th.' Then followed the names of all the twenty-one Presidents, down to President Arthur.

"'Centennial Grove' was planted in 1876 by Colonel A. E. Jones, from trees brought from Valley Forge. The tablet he had laid yesterday was dedicated to the heroes who served with Washington at Valley Forge. Following is the inscription: Eagle bearing the scroll 'Centennial Grove. Dedicated to the memory of 1776, and the patriots who suffered with Washington at Valley Forge, brought from that historic ground and planted by A. E. Jones, April 27, 1876.' Then followed the names Washington, Knox, Lafayette, Greene, Hamilton, Gates, Wayne, Putnam, H. Lee, Steuben, Weldin, Muhlenburg, Sullivan, Stark, Warren, McIntosh, Potter, Maxwell, Woodward, Patterson, Allen, De Kalb, Kosciusko, Marion, C. Lee, Glover, Poor, Larned, Scott, Pulaski, Sumter, Lincoln, Morgan, Smallwood, Eberhardt.

"Place was left upon each tablet for additional names. The Forestry Association planted a pin-oak tree to the memory of the late Adolph Strauch, superintendent of Spring Grove Cemetery. This was his favorite tree, and a year ago he expressed the hope that if any tree should ever be planted to his memory, it should be a pin-oak. It was appropriately draped in mourning, and labeled. An imported horse-chestnut was planted to the memory of Rev. Dr. Lilienthal by the German Pioneer Association. Both occupy prominent positions on the summit and center of the east ridge.

"At eleven o'clock the school exercises commenced at 'Authors' Grove.' These exercises were outlined by Superintendent Peaslee in the assignment of authors to the respective schools, and the programmes were filled out by the principals. The trees having previously been planted, small granite tablets, about eight inches square, bearing the name of the author honored and the date of the ceremony, were sunk, in most cases uniformly with the surface of the sod, in the immediate vicinity of the tree. Thus the exercises were dedicatory only.

"Following was the order of the school exercises, each of which included a sketch of the author designated, appropriate songs, and the recitation of selections from the author's works."

Here follows a detailed account of the part each school took in the exercises.

These were the first *memorial* groves ever planted in America—the first public planting of trees in honor of the memory of authors, statesmen, soldiers, pioneers, and other distinguished citizens.

Superintendent Peaslee, as chairman of the Arbor Day Committee, prepared a circular addressed to trustees, superintendents, and teachers of Ohio, requesting them to celebrate Arbor Day after the *Cincinnati plan*, which was outlined in the circular. This document was sent to all parts of Ohio, and to other States, and I am happy to know that in many places in Ohio and in adjoining States, tree-planting was celebrated according to this plan. The entire school system of West Virginia, under the inspiration of her enterprising State superintendent, B. L. Butcher, responded to this sentiment, and celebrated tree-planting after the manner set forth in our circular. One of the leading journals of England has lately recommended the introduction of the Cincinnati plan of tree-planting celebrations into the public schools of Great Britain.

There is a German proverb which says "what you would have appear in the nation's life you must introduce into the public schools."

It is gratifying to know that the efforts made in Cincinnati in behalf of forestry are duly appreciated abroad by men distinguished for their attainments in forestal science. Prof. Adolph Leue, our secretary, a scientific forester by education, sent several packages (of 100 trees each), of the *Catalpa speciosa* to different parts of Europe

accompanied with requests to plant them on "Arbor Day," April 27, 1882. These requests were complied with. Prof. Dr. F. Judeich, the celebrated director of the "Royal Forest Academy," of Tharandt, Saxony—the most renowned forest academy in the world—informed Prof. Leue that the trees sent by him were planted by the academy near the famous grove of beech known as "Tharandt's Heilige Hullen," and that the grove they form is dedicated to "Cincinnati Arbor Day," and is called the "Cincinnati Arbor Grove." The *Catalpa speciosa* is a purely American tree, described and named by Dr. John A. Warder, and this is its first introduction into Europe.

NECROLOGY.

Rev. MAX LILIENTHAL, D. D., the distinguished and eloquent rabbi of the Mound Street Temple, of this city, was among the first of our zealous workers in the promotion of the interests of forestry. He was a wise counselor, a profound scholar, an earnest leader, a devoted friend. His last public utterances were made before the committee which was then arranging for the organization of the Forestry Congress. He died suddenly, in the Spring of 1882, leaving a vacancy in the list of our officers ever to be mourned.

Prof. ADOLPH STRAUCH, the superintendent of Spring Grove Cemetery, and the first man who introduced the principles of landscape gardening, in the management of cemeteries, was also one of our most active officers. Recognized as one of the first arboriculturists in America, and the man to whom is the credit of giving to Cincinnati her renown for beautiful suburbs, with landscapes as lovely as a dream, he was generally beloved. He died in April, 1883, during the session of our Forestry Association.

DR. JOHN A. WARDER, the honorary president of our association, died at his beautiful home, at North Bend, Ohio, in July, 1883. His love for nature seems to have been born in him. His early surroundings and associations were powerful allies in his education as a naturalist. He read and studied and mastered the Book of Nature in its varied teachings as but few have mastered it. A seed, a bud, a leaf, a plant, a branch, a tree, a shell, a rock, attracted his notice and elicited investigation. He was a veritable student of Nature, and his life among men was as lovingly beautiful as it was among his plants and his trees.

His work in the great West for the encouragement of tree-planting, and in other parts of the country, and his varied and extensive writings on subjects pertaining to forestry, are well known in this country and in Europe. He is justly called the Father of American forestry.

Kind, generous, loving, hopeful, enthusiastic, full of accurate knowledge which he was ever ready to impart, teachable in spirit and teaching in life, he elevated and blessed his race.

The forests will sing his requiem and future generations will call him blessed.

WARREN HIGLEY,

President of Ohio State Forestry Association.

INTRODUCTION.

THE time has come when the people of Ohio must wake up to the importance of preserving our forests and of planting trees, or our State will suffer the terrible consequences of this neglect before another half century has passed away. Hon. Emil Rothe, who has given the subject much study, in speaking of Ohio before the American Forestry Congress at Cincinnati in 1882, said: "Let the hills be deprived of the rest of the protection which the forests afford, and half the area of our State will be sterile in less than fifty years." "The wealth, beauty, fertility, and healthfulness of the country," as Whittier justly says, "largely depend upon the conservation of our forests and the planting of trees." How can these truths be impressed most effectively upon the minds of our people? In the first place, forestry associations should be organized in every city, town, village, and country school district in the State, whose object shall be to plant trees along streets, by the road-sides, in parks and commons, around public buildings, in waste places; to distribute information in regard to trees and forests among the people, and to encourage tree-planting in every way possible. These associations, in conjunction with the schools, should hold tree-planting celebrations from year to year, but where such associations are not formed, the schools should conduct the exercises. The youth of our State must be instructed in the value and utility of forests—their influence upon climate, soil, productions, etc.—correct sentiment in regard to trees must be implanted in them if the best interests of the State in regard to forestry are to be subserved; and the most impressive and attractive means of imparting the instruction, and of interesting the pupils in the subject, is through the celebration of tree-planting. It is also the surest and best way of calling the attention of the people at large to it. The object of the celebration is to instill into the minds of children and older citizens correct sentiments in regard to trees, and to store their minds with information relating to forestry, and to the distinguished individuals in whose honor or memory each tree, or group, is planted, for we would have all the trees around which the celebrations take place dedicated to great authors, statesmen, soldiers—in brief, to famous men and women, whose lives have reflected honor upon our country; to the pioneers and distinguished citizens of each township, village, or city, as the case may be, and thus "make trees," as Holmes says, "monuments of history and character."

In every place where sufficient grounds can be obtained, either in public parks or elsewhere, we would have memorial groves planted, and the "Arbor Day Celebrations" take place in them. Let there be a "Citizens' Memorial Grove," in which trees shall be planted from year to year by loving hands of the relatives and friends of those who have died; let there be a "Pioneers' Grove," in which all citizens,

young and old, shall annually join in paying just tribute to the memory of those who endured the hardships and privations of a pioneer life.

"They vanish from us, one by one,
In death's unlighted realm to sleep;
And O! degenerate is the son
Who would not some memorial keep."

Let there be an "Authors' Grove," in which the school children shall honor, by living monuments, the great men and women in literature, so that while they learn to love and reverence trees they will, at the same time, become interested in the lives and writings of distinguished and worthy authors. Let there be a Soldiers' Grove, devoted to the memory of our patriotic dead. Yes,

Plant beautiful trees in honor of those
Whose memory you revere,
And more beautiful still they'll become
With each revolving year.

And what monuments the trees, the monarchs of the vegetable world, become! They are more durable than marble itself.* Their grandeur will challenge the admiration of the beholder when the coeval marble monument at their base will lie in ruins, defaced by age and crumbling into dust. Well may the great historian, Benson J. Lossing, ask, "What conqueror in any part of 'life's broad field of battle' could desire a more beautiful, a more noble, a more patriotic monument than a tree, planted by pure and joyous children, as a memorial of his achievements? What earnest, honest worker, with hand and brain for the benefit of his fellowmen, could desire a more pleasing recognition of his usefulness than such a monument, a symbol of his or her own productions, ever growing, ever blooming, and ever bearing wholesome fruit?"

Should the annual celebration of tree-planting, the preparation for which affords ample opportunity for imparting all needful information in regard to trees and forestry, become general in our State, the time would not be far distant when such a public sentiment would be formed as would lead to the beautifying by trees of every city, town, and village in Ohio, as well as public highways, church and school grounds, and the homes of the people in the country. In truth, within the next twenty-five years thereafter the general aspect of many parts of the State would be changed as has been that of Connecticut within the last few years through the instrumentality of her schools under the leadership of Hon. B. G. Northrop, and of her "Improvement Societies," which have been organized through his efforts. Pastor Oberlin, after whom Oberlin College, of this State, is named, required each boy and girl, before he would administer the ordinance of confirmation, to bring a certificate that he or she had planted two trees. If but the youth of Ohio could be led to plant their two trees each, how by the

*NOTE.—The natural age of the oak is from 1,500 to 2,000 years; of the elm from 350 to 500 years; of the cypress, 350 years; of the larch, 600 years; of the yew tree, 2,500 to 3,000 years; of the maple from 600 to 800 years; of the cedar, 800 years; of the linden, 1,200 years. There are trees now standing that are supposed to be over 5,000 years old.

children alone could our great State be enriched and beautified within the next fifty years.

Again, the trees which the children plant, or which they assist in dedicating, will become dearer to them as year after year rolls on. As the trees grow, and their branches expand in beauty, so will the love for them increase in the hearts of those by whom they were planted or dedicated, and long before the children reach old age they will almost venerate these green and living memorials of youthful and happy days; and as those who have loved and cared for pets will ever be the friends of our dumb animals, so will they ever be the friends of our forest trees. From the individual to the general, is the law of our nature. Show us a man who in childhood had a pet, and we'll show you a lover of animals. Show us a person who in youth planted a tree that has lived and flourished, and we'll show you a friend of trees and of forest culture.

ARBOR DAY CELEBRATION BY THE SCHOOLS.

We suggest that the exercises consist of reading, by the pupils, compositions or essays on the importance and usefulness of forests; of reciting, individually and in concert, selections on trees from various authors; of giving extracts from, and sketches of, the life and writings of the particular author in whose honor or memory each tree or group is planted; of singing; of the ceremony of throwing the soil, each pupil in turn, about the trees; and of appropriate talks by trustees, teachers, and others.

It is intended to have the exercises indicated above take place while the pupils of each class, room, or school, as the case may be, are arranged around their respective trees or groups. At the conclusion of this part of the programme, let all the pupils come together and sing our national and other appropriate songs, and listen to short addresses by speakers selected for the occasion. All the exercises should not occupy more than two hours, and at the expiration of that time the children should be permitted to enjoy their holiday (within proper limits, of course), after their own manner, on the green sod. Thus, "with the ceremony of a celebration, and with the attraction and pleasures to the young minds of a holiday, the exercises and what they symbolize will be deeply stamped upon the memory of the school children, and the entire effect upon them must prove to be of the most important and satisfactory character."

In order to indicate more fully the character and scope of the Arbor Day celebrations, we will here give a brief description of the celebrations held by the public schools of Cincinnati in Eden Park. For a fuller detail of the same we refer you to the last two annual reports of the schools.

About six acres were set apart in the park for a grove, now known as "Authors' Grove." Selections on trees and forestry from various authors were sent to the several schools to be memorized by the pupils; also information concerning historic trees of our country, and many facts of history giving the effects upon climate, soil, production, etc., both of the destruction and the removal of forests were given to the scholars. These formed the basis of compositions in the upper grades.

In addition to the above, the teachers gave sketches of the lives of their respective authors, and the pupils learned selections from their writings. In some of the schools the boys were organized into companies, under the name of Forestry Cadets, or the "Emerson Forestry Cadets" of Hughes High School, the "Longfellow Forestry Cadets" of the Eleventh District School, the "Holmes Forestry Cadets" of the Twenty-second District School; the girls and boys not organized were called Foresters, as the "Franklin Foresters" of the Tenth District School, the "Whittier Foresters" of the Twenty-sixth District School, and so on.

That the part taken by the pupils in the actual planting of the trees may not be misunderstood, I will state that experienced tree-planters did most of the work of setting out the trees previous to Arbor Day, and that the pupils finished the setting by filling around each tree soil left in heaps for this purpose.

On Arbor Day, Authors' Grove was distinguished from the others ("Pioneers' Grove," "Battle Grove," "Presidents' Grove," "Citizens' Memorial Grove," for the celebration of tree-planting was going on at the same time in each of these groves), by a large blue flag, placed near the center of the grove, and by small flags of the same color placed around the grove. At a given signal the pupils, upwards of seven thousand in number (at the celebration last year there were more than seventeen thousand present), arranged themselves, each school around its special author's tree or group, and the exercises indicated above began.

CELEBRATION EXERCISES.

In order to furnish information to composition writers and to speakers, Part First of this pamphlet contains lessons from history and other important facts. We earnestly request trustees, superintendents, and teachers to familiarize the older pupils under their charge with these facts, whether their schools celebrate tree-planting or not.

Part Second contains extracts on trees from various authors, for concert and individual recitation. It is not expected that they will all be recited at one celebration, but it is thought best to give a large variety from which to select.

It was our intention at first to have this pamphlet consist of three parts; Part Third to contain sketches of the lives of a number of our great authors, and selections from their writings, but, after careful consideration, it has been decided not to add this, for two reasons. First, because it would make the pamphlet too large, and, second, because sketches of the lives of our authors are found in our school readers, and beautiful selections from their writings can be made by the teachers with little difficulty. Of course the selections for this part of the programme need not be on trees or forestry.

JOHN B. PEASLEE,

Chairman Committee on Arbor Day Exercises.

PART FIRST.

LESSONS FROM HISTORY, AND OTHER FACTS.

PALESTINE.

At the time when Joshua conquered the Promised Land, milk and honey were flowing into Canaan; that is, it was a country of wonderful fertility, blessed with a delightful climate. Both ranges of the Lebanon and its Spur Mountains were then densely covered with forests, in which the famous cedar predominated, that stately tree so masterly and poetically described by the psalmist and the prophets. The large and continually increasing population of Palestine enjoyed comfort and abundance during centuries. But the gradual devastation of the forests, which was finally completed by the Venetians and the Genoese, brought about a general deterioration of the country. The hills of Galilee, once the rich pasturing grounds for large herds of cattle, are now sterile knobs. The Jordan became an insignificant stream, and the several beautiful smaller rivers, mentioned in the Bible, now appear as stony runs, leading off the snow and rainwater, but being completely dry during the greater part of the year. Some few valleys, in which the fertile soil washed down from the hills, was deposited, have retained their old fertility, but the few cedar trees remaining as a landmark around the Maronite convent on the rocky and barren Lebanon, look lonely and mournfully upon an arid and desolate country, not fit to sustain one-sixth of such a population as it contained at the time of Solomon.

EMIL ROTHE.

GERMANY.

The progress made by Germany in tree-planting is but a part of her general progress. The credit is given to the great Frederick; it was part of the national policy of his day which raised Prussia from a small power to a great one, and to the energetic continuance of that policy, Germany owes Sadowa and Sedan. By this forethought, vast armies have been maintained, where once the sandy deserts would not nourish a flock of goats, and successive regiments of hardy soldiers have poured forth from the fertile soil where, two hundred years ago, the rugged *débris* of winter torrents, the thorn and the thistle, overspread a thirsty and impoverished land.

R. W. PHIPPS.*

* NOTE.—The articles credited to Mr. R. W. Phipps, of Toronto, Canada, were taken from his report to the Canadian Government; those credited to Hon. Emil Rothe, from the Proceedings of the American Forestry Congress, published in the report of the Toronto Fruit Growers' Association. Both of these reports are exceedingly valuable.

J. B. P.

PROVINCE OF DÜBEN, SAXONY.

In the Prussian province of Saxony, the town of Düben celebrates an annual festival. The forests surrounding it had been recklessly cleared, and the sand banks which lay to the north-east began at once to move. Long tracts of corn land were converted into a sandy waste. The waves of gritty particles began to overleap the hedges and overflow the gardens under the walls of the town. Vegetables became scarce, pasture for cattle rare, and the most serious results were feared, when the forests of the district offered to arrest the desolating invasion. Fifty years have elapsed since then. Now, rich woods of acacias, birch, and pine wave over the sandy hills, and with their fine network of rootlets, hold the restless sand in its place and compel it to quiescence. Every year the citizens of Düben turn out with music and banners, into the woods, and celebrate with great jubilation the salvation of their town.

S. BARING GOULD.

FRANCE.

In France the aristocrats had preserved the forests. But when Jacques Bonhomme had overthrown their tyranny he proceeded to destroy the groves and forests, and in a short time he succeeded in almost staying crop growth in the fields adjacent. Wiser councils now prevail; experience has borne its fruits, and the French forests, particularly near the sea, bear witness how rapidly Providence assists a liberal, how sternly she repays a greedy and grasping, cultivator.

PHIPPS.

SPAIN.

Under the reign of the Moorish caliphs the Iberian peninsula resembled a vast garden, yielding grain and fruit, of every known variety, in the most perfect quality, and in endless abundance, and thickly populated by a highly cultivated people. But then the sierras and mountain slopes were covered with a luxuriant growth of timber, which was afterwards wantonly destroyed under the rule of the kings. Large herds of half-wild goats and sheep prevented the spontaneous growth of trees on the neglected lands. Now nearly all the plateau-lands of Spain, being fully one-third of the entire area, are desert-like and unfit for agriculture, because of the scarcity of rain and the want of water. Another one-third of the territory is covered with worthless shrubs and thorn-bushes, and affords a scanty pasture for the merino sheep, the number of which is decreasing from year to year. The once delicious climate has become changeable and rough, since there are no more forests to break the power of the scorching Salano and the cold Galego wind. The average depth of the fine rivers that cross Spain in all directions has greatly diminished. The government, well aware of the causes of the deterioration of the soil and climate, has lately made earnest efforts, partly to replant the old forest grounds, but has met with little success, it being very difficult to make trees grow on former timber land, which has been lying waste for a longer time. It will take a full century's time and necessitate an immense outlay of money to restock Spain with sufficient timber.

ROTHE.

Spain is very deficient in woodland. The evils of denudation are perhaps nowhere more signally exemplified than in Spain. Rentzsh goes so far as to ascribe the political decadence of Spain wholly to the destruction of the forests. A school of forestry has been lately established in Escorial, and good results from the training there may be hoped for.—*Encyclopædia Britannica*.

THE EASTERN COAST OF THE ADRIATIC SEA.

On the entire eastern coast of the Adriatic Sea, in Dalmatia, Herzegovina, and Montenegro, the same evil consequences of the devastation of the natural forests are clearly perceptible. These coast lands were very fertile until the Romans, having used up their own timber, took it from the other side of the Adriatic, and until millions of Illyric trees were converted into pillars and rammed into the lagunas to make foundations for the houses, palaces, and churches of Venice. What was left by the lumbermen was destroyed by the camp-fires of careless herdsmen, and here also the goats did their pernicious work in preventing spontaneous growth. The long mountain range running along the coast, which was yet well timbered in the time of the great Constantine, is now destitute of all soil; the naked lime-roads, reflecting the hot rays of the sun, warn the stranger not to enter the sterile and inhospitable country, hardly worth the loss of human life and treasure which the subjection of its unruly inhabitants now costs the house of Hapsburg.

ROTHE.

SICILY.

Let us look at Sicily, once the great grain reservoir for Rome. Since the island of plenty was despoiled of its forests, it gradually lost its fertility and the mildness of its climate. The ruins of proud and opulent Syracuse lay in a desert, covered by sand, which the hot sirocco carried over the Mediterranean Sea from Africa. A few isolated, well-watered, and carefully cultivated districts of very limited extension, is all that is left to remind the tourist of the by-gone glory of Sicily.

ROTHE.

PYRENEES MOUNTAINS.

The desolation of mountain regions by the clearing of forests is strikingly illustrated in the Pyrenees. Formerly the plains were cultivated, and inundations were much less frequent and less destructive than nowadays. As roads came to be opened the profit from sheep and cattle became greater, and the clearing of forests was begun to make room for pasturage and, to some extent, for timber, until by degrees the slopes of the mountains were denuded, and the rains, having nothing to hinder, began to form eroding torrents, the south slopes suffering most, because first cleared and directly exposed to the sun's heat. The extremes of flood and drouth became excessive, and extensive tracts have been ruined for present occupation from this source.

PHIPPS.

ITALY.

When the Apennine and Sabinian Mountain range and its slopes were covered with its natural growth of trees, the now detested Roman Campagnas, which constitute the largest part of the Pontine swamps, were a beautiful section of country. They were then adorned with sumptuous Summer residences, villas, parks, flower and fruit gardens of the Roman aristocrats. After the destruction of the forests, the whole region became unhealthy, and almost absolutely uninhabitable on account of the malarious gases emanating from the soil. Formerly, these were absorbed by the leaves of numerous trees; now they fill the air and infect even the very heart of St. Peter's eternal city. ROTHE.

WITHIN a few years a portion of these swamps have been planted with eucalyptus trees, and they have had a wonderful effect on the healthfulness of the atmosphere, and people now reside in these parts during the Summer, where but a short time ago it was impossible to live. The eucalyptus tree is now being introduced into the everglades of Florida in order to purify the air in these unhealthy regions of the State.

J. B. P.

ISLAND OF ASCENSION.

The Island of Ascension furnishes another remarkable instance. This island, some seven and a half miles long and six wide, was entirely barren when first occupied in 1815, and so destitute of water that supplies were brought from England and the Cape of Good Hope. Means have since been taken to plant trees and to introduce agriculture on the island, though not to any great extent. The effect has been remarkable. The island grows forty kinds of trees where but one grew in 1843, owing to want of water. The water supply is excellent, and the garrison and ships visiting the Island are supplied in abundance with vegetables of various kinds.

PHIPPS.

CEYLON.

In his report to the Earl of Kimberly, Dr. J. D. Hooker, of the Royal Kew Gardens, says: "The presence of forests plays a most important part in storing the rainfall and yielding up gradually to the streams a continuous supply of water, a thing, I need hardly say, in a hot country of primary importance. Moreover, the rain is retained by forests on the surface of the ground; it gradually permeates to the subsoil, and so feeds the underground water-bearing strata upon which springs and wells must eventually depend. If the forest is indiscriminately removed the rain runs off as it falls, and washes away the superficial and fertile soil with it. The mischief already done in Mauritius and various West India Islands is so widely spread (being in some, indeed, irreparable), that I venture to press upon your lordship my own opinion as to the urgency of active steps being taken in the case of an island so beautiful and at present so fertile as Ceylon. I have lately received an account of the deterioration of the climate of some of the Leeward Islands, which affords a melancholy confirma-

tion of what I have urged above. The contrast between neighboring islands similarly situated is most striking. The sad change which has befallen the smaller ones is due to human agency alone. It is reported of these that in former times they were clothed with dense forests, and their older inhabitants remembered when the rains were abundant and the hills and all uncultivated places were shaded by extensive groves. The removal of the trees is the cause of the present evil. The opening of the soil to the vertical sun rapidly dries up the moisture. Without shade upon the surface, the water is rapidly exhaled, and springs and streams are dried up."

ST. HELENA.

The Island of St. Helena, the well-known scene of Napoleon's banishment, furnishes a remarkable illustration of the connection that exists between forests and rainfall. When first discovered, in 1502, it had heavy forests. The introduction of goats, and other causes, destroyed these woodlands, until the island was almost denuded. The consequences were that in the records of the last century we find accounts of repeated and almost periodical visitations of very severe drought, occasioning various losses to cattle and crop efforts. Towards the end of the last century, however, the governor saw the need of strenuous efforts. Gardeners were sent for, and trees from all parts of the world were planted, without regard to their character. The "Pinas Pinaster" was sown very extensively, and several plantations of this still exist. The consequences of this were discovered a few years ago as follows: "For many years past, since the general growth of our trees, we have been preserved from the scourge, and droughts such as were formerly recorded are now altogether unknown. Our fall of rain is now equal to that of England, and is spread almost evenly over the year."

PHIPPS.

ISLAND OF SANTA CRUZ.

The famous West Indian island of Santa Cruz is at the present moment suffering from the vandalism of its inhabitants; its eastern portion, which twenty-seven years since was rich, populous, and of tropical luxuriance, now deprived of its forests, has become dry, arid, and worthless. It is found to be too late to retrieve the previous error, for, of a thousand trees recently planted upon an estate on this island, not one survived. The facts in regard to the island of Curaçoa are still more interesting: "In the year 1845 it was found to be an almost perfect desert. Where, according to the testimony of the inhabitants, had once been a garden of fertility, abandoned plantations, the recent ruins of beautiful villas and terraced gardens, and broad arid wastes, without a blade of grass, showed how sudden and complete a destruction had fallen upon this unfortunate little island. The cause was the cutting-down of the trees for export of their valuable timber; the effect followed even more rapidly than at Santa Cruz, as the island lies five leagues further south, and the heat is more intense. The rains have almost entirely ceased. Almost within sight of Curaçoa is

the coast of the Spanish main, covered with the rankest vegetation, over which the burdened clouds shower down abundant blessings." (*From Report of Commissioners of State Park, New York: Hon. Horatio Seymour, chairman, and Verplank Colvin, secretary.*)

ALGIERS, SAINT JAGO ISLAND.

In Algiers marked changes in the climate have followed upon the deforesting of extensive tracts, and wonderful results have followed the systematic planting of other regions. The islands of the sea have been made so many isolated experimental stations, where men have learned how essential to health the forests are; while on some of them the conclusive test of reforesting has been made with a return of showers, and a more equable distribution of heat and cold. Saint Jago, the chief of the Cape de Verde Archipelago, was, at its discovery, clothed with a forest which has been recklessly destroyed. Rain is now lacking sometimes for a whole year, a green leaf can scarcely be detected over what were once fertile lava plains, while certain of the harbors of the island have been filled up by the precious soil of the island, which has been carried down by the fierce torrents, which, alternating with drought, curse this naked island. Similar results have followed the destruction of forests on St. Helena, the Mauritius, and certain of the Canary Islands.

ROTHE.

ISLAND OF TERNATE.

The effects of forests upon the general healthfulness of the State is great. The philosopher, Boyle, long since stated that in the Dutch East Indian island of Ternate, long celebrated for its beauty and healthfulness, the clove trees grew in such plenty as to render their product almost valueless. To raise the price of the commodity most of the spice forest was destroyed. Immediately the island—previously cool, healthy, and pleasant—became hot, dry, and sickly, and unfit for human residence. It is well known that the general clearing-away of the forests in this country has had a tendency to raise the temperature in Summer.—*New York Report of the Commission of State Parks.*

BUCHARIA.

Khanate of Bucharia presents a striking example of the consequences brought upon a country by clearings. Within a period of thirty years this was one of the most fertile regions of Central Asia, a country which, when well wooded and watered, was a terrestrial paradise. But within the last twenty-five years a mania of clearing seized upon the inhabitants, and all the great forests have been cut away, while the little that remained was ravished by fire during the civil war. The consequences were not long in following, and have transformed this country into a kind of arid desert. The water-courses are dried up and the irrigating canals empty. The moving sands of the desert being no longer restrained by barriers of forests are every day gaining upon the land, and will finish by transforming into a desert as desolate as the solitudes that separate it from Khiva.

PHIPPS.

OHIO.

Have you never tried to find out why Southern Ohio has ceased to be the great fruit country *it was formerly known to be*? Why is it that we can not raise any more peaches in our State, while they used to bring sure crops not more than a quarter of a century ago? * * * * * What is it that makes our climate, once so favorable for mankind and vegetation, more unsteady, from year to year? Look at the woodless hills of Southern Ohio, and you have the answer.

Let the hills be deprived of the rest of the protection which the forests afford, and half of the area of this State will be sterile in less than fifty years. The rain will wash the soil from the hilltops first, and then from the slopes; the limestone, which is now covered with productive humus, loam and clay, will be laid bare; the naked rocks will reflect the rays of the sun and increase the Summer heat; the north storms will blow unhindered over the country, and every change of the wind will cause an abrupt change in the temperature. The rainfall will be diminished and become irregular. Snow and rainwater will at once run down in the valleys and cause periodical freshets, which will ultimately carry away the best part of the soil, even from the valleys. Such will be the unavoidable results of further devastation of timber.

ROTHE.

KENTUCKY.

Hon. Cassius M. Clay, of Kentucky, said before the American Forestry Congress at Cincinnati: "I move in the sphere of experience with more certainty. I remember when the forests were hardly broken here that springs of water were very frequent and perennial. The rivulets and creeks and rivers had a perpetual flow. These have now changed. The rivulets and creeks are now dried up in Summer, and the fish so often caught by me in earlier years are gone. Not one spring in a thousand remains. Indian corn was generally planted in March, and the rains and exhalations of moisture from the surroundings made crops successful every year. Now, the destruction of the forests has lost to us that bed of leaves which was a perpetual reservoir of water for springs and evaporation; aided by the treading of the hard surface, the rain-fall, if the same as of old, rushes off at once, sweeping the soil into the Mississippi delta. The dry winds absorb not only the ancient humidity of the air, but drink up the subsoil evaporation, so that our Winters are longer, more changeable, and unendurable. Corn can hardly be safely planted till late in April, and drouth too often ruins all in spite of our best efforts.

MASSACHUSETTS.

Prof. Sargent, of Harvard University, who has given this question as much study as any one in America, says: "As moderators of the extremes of heat and cold, the benefits derived from extensive forests are undoubted, and that our climate is gradually changing through their destruction is apparent to the most casual observer. Our Springs are later, our Summers are drier, and every year becoming more so; our Autumns are carried forward into Winter, while our

Winter climate is subject to far greater changes of temperature than formerly. The total average of snowfall is perhaps as great as ever, but it is certainly less regular and covers the ground for a shorter period than formerly. Twenty years ago peaches were a profitable crop in Massachusetts; now we must depend on New Jersey and Delaware for our supply; and our apples and other orchard fruits now come from beyond the limits of New England. The failure of these and other crops in the older States is generally ascribed to the exhaustion of the soil; but with greater reason it can be referred to the destruction of the forests which sheltered us from the cold winds of the north and west, and which, keeping the soil under their shade cool in Summer and warm in Winter, acted at once as material barriers, and reservoirs of moisture."

THE NORTHWEST.

"I had an opportunity," says Mr. Rothe, "to observe and study the results caused by the destruction of the forests in the Northwest. Thirty years ago steamboats drawing six feet of water made regular trips on the Upper Mississippi up to St. Paul. Now the navigation with boats of half that draught is uncertain. Nearly all the tributaries of the Upper Mississippi have also lost one-half, or even more, of their former supply of water. Inundations in the Spring are now frequent, while now in the Summer time the depth of many of these rivers average hardly more inches than could be measured by feet thirty years ago. Water-powers, which were formerly deemed to be inexhaustible, have entirely been abandoned, or their failing motive power has been replaced by steam. In the remembrance of the older settlers the climate of Wisconsin and Minnesota was remarkably steady, the Winters were long and cold, the supply of snow ample and regular, and late frosts in the Spring were unusual. Now the inhabitants complain of abrupt changes of the temperature in all seasons of the year, and of the irregularity of the snow-fall. The Legislature of Wisconsin has already paid attention to these alarming facts, and has taken the preservation of existing forests, and the establishment of artificial ones, in earnest consideration. By a resolution recently passed, it asks of the National Government the transfer for that purpose of all unsold public lands to the State which are now despoiled of their timber by thievish lumbermen."

ARIZONA.

In the Territory of Arizona an immense number of deserted Indian dwellings carved out of the rocks were recently discovered. The former inhabitants of the same must necessarily have been a sedative people, devoted to agriculture, but the whole district is now nearly a desert, there being no supply of water, and hills as well as plateaus and valleys are dry, stony, and nearly destitute of vegetation. This can not have been the condition of that district when it was densely populated by hundreds and thousands of Indians. Now the only plausible solution of the ethnographical enigma which is here propounded to us, is the following: The hills and slopes there were once stocked with lum-

ber, which was wasted by the inhabitants. The same deterioration of the country gradually took place which we notice in Palestine, Greece, and Sicily, where the people had to emigrate to avoid starvation.

But enough of the warning examples of history.

It is not too late to repair all the damage that has been done in America by the devastation of our natural forests. A regulation of the use of the timber may be effected without any injury to the legitimate lumber trade, and the replanting as well as the establishment of artificial forests, may undoubtedly be made profitable for private as well as for public enterprise. If it is remunerative to acclimatize and extensively raise American trees in Germany and France, where the soil is much higher in price than here, why should it not be lucrative to cultivate them in those parts of the United States in which the timber is scarce and precious? They grow quicker here and to greater perfection than anywhere else. Nature has lavishly provided this country with an uncommonly large number of the most valuable species of trees. There are not more than thirty-five species and distinct varieties of native trees in France which attain a height of over thirty feet, not more than sixty-five in Germany, but over one hundred and fifty in the upper part of the Mississippi Valley alone. All Europe possesses not a single native walnut tree. (The so-called English walnut is of Asiatic origin.) We have nine varieties of hickory and two of walnut proper. You may search all the world over in vain to find a sort of timber which, in general usefulness, can rival our hickory tree. Our walnut and oak varieties alone outnumber all the varieties of trees native to France and Spain.

A benign nature has lavishly provided for this country; but does that give us a right to waste these blessings, destined for the human race of all future ages, within the short life of a few generations, like spendthrifts? Shall we adopt the most detestable motto of a modern Sardanapalus, "*Après nous le déluge*"—anticipate every thing, and leave nothing for those who will come after us? Will America's pride bear the humiliating prospect of having the immense work of culture, which so far has been achieved in this country by the most intelligent, independent, progressive, and energetic of all nations, frustrated by the unavoidable consequences of our greedy mismanagement of the natural resources of our country? Shall the future of this great republic be made uncertain by a gradual deterioration of soil and climate, or shall it forever remain the happy and comfortable home of the free? Is not the care for future generations one of the most solemn duties imposed upon us by laws of humanity and morality. Are we worthy to enjoy the bequest of our forefathers if we are not just and liberal enough to provide for our descendants.

ROTHE.

NEVADA.

The Nevada *Enterprise* in speaking of the effect that the partial stripping of the forests on the sides and summits of the Sierras will have, says: "Already one change has occurred that is evident to the most ordinary observer, which is the speedy melting away of the snow on the mountains. It now goes off at once in a flood, with the

first warm weather of Spring, whereas, formerly, lying shaded and protected by the pines and other evergreen trees, it melted slowly and all Summer sent down to the valleys on both the eastern and western slopes of the Sierras constant and copious streams of water. Instead of a good stage of water in our streams throughout Summer as in former times, there is a flood in the Spring, and when this is past by, our rivers speedily run down, and, being no longer fed from the mountains, evaporation leaves their beds almost dry when the hot weather of Summer comes on."

FORESTS AND THEIR MANAGEMENT IN OTHER COUNTRIES.

GERMANY.

In Germany the management of forests by the state has been carried on for hundreds of years, and, as we have seen, vast tracts of sterile land have been redeemed by government forestry. "Here we find a model or precedent not only of systematically planting thousands of acres of trees, but a general system of forest management commencing by a careful survey, stock-taking, and commutation of all rights; careful experiments in the rate of growth; the best soil for each description of tree; in fact, in every branch of the subject, and resulting in what we find to-day: hundreds of thousands of acres mapped, divided into periods and blocks, and worked to the best advantage both with regard to present and future, and the annual yield of which now and for many years to come, is known and fixed to within a few hundred cubic feet. In Prussia there are twenty millions of acres of forests, ten millions of which are state forests. Of these the income is \$14,000,000, and the expenses \$7,500,000, leaving \$6,500,000 clear profit. When it is considered that this result is arrived at without trenching on the capital or stock of timber in the forests, which, on the contrary, is being increased and improved in every province of the kingdom, and that the indirect value to the people of many forest privileges, which they exercise free of charge, must be very great, not to mention an improved climate, some idea may be arrived at of the enormous value and benefit such a system of forests must confer on Prussia. The forests form part of the finance department, and are presided over by an overland-forest-master and ministerial director, and others. There are two forest academies, one near Berlin, and one in Hanover. There are twelve provinces in Prussia divided into thirty circles, and to each an over-forester master. Next in order come the forest-masters, numbering one hundred and eight, in charge of divisions with an average area of six thousand acres, and then the executive officers, seven hundred and six over-foresters, to each of whom is 7,000 acres, and to each of these is attached a cash-keeper; and then there are 3,646 foresters, or overseers, with ranges of 1,000 to 3,000 acres. At the forest academy near Berlin there are seven professors with assistants. There is an experimental garden attached, with an over-forester in charge of the technical portion, and professors for the meteorological, zoological and

chemical sections. The varied apparatus includes a building where seed is dried and separated from the cones; large seed-bed of spruce, fir, willow; full opportunities of transplanting seedlings, and examples of every kind of tree for botanical study. There is also a museum rich in specimens of all sorts of birds, animals, and insects found in the forests. In cases where the animal or insect does damage to trees, specimens of the branch, bark, leaf, or cone, in a healthy state, and after being attacked, are exhibited, close to each, so that the students can see at a glance the nature of the damage, and connect it with the animal which causes it. Insects are shown in the several stages of their existence—larvæ, chrysalis, caterpillar, moth—with their ramifications in the stem or branches of the tree. These, with specimen blocks of almost all descriptions of timber, form a most instructive collection. There is a forest district attached. . . . In the national appropriation bill, large sums are set apart for the purchase of such lands as are unfit for cultivation, and for utilizing the same by planting trees.”

PHIPPS.

HANOVER.

In Hanover, a province of Prussia, there are 600,000 acres in the government forests, and the cost of working and all expenses, \$650,000 annually; the receipts, \$1,500,000, and the profit \$850,000. Here the steepest and most rocky sides of the hills are all covered with forests, which have been created by the labors of the Forest Department. In many such places, where even the few handfuls of soil placed round the young tree had to be carried some distance, it is not contended that the *first* plantation will yield a pecuniary profit, but the improvement in climate by the retention of the moisture, and the reclamation of large tracts, formerly barren and unproductive, is taken into account; besides which the dropping of leaves and needles from the trees will, ere long, create a soil and vegetation, and insure the success of plantations in future years.

PHIPPS.

SAXONY.

The state forests are nearly 400,000 acres, worked at an expense of \$500,000, receiving \$1,750,000, leaving to the government a clear rental of \$1,250,000. There is a forest academy at Thorandt. The state forests of Bavaria are 3,000,000 acres. They return, after paying all expenses, \$4,500,000 per annum.

PHIPPS.

AUSTRIA.

The state forests of Austria contain 2,000,000 acres. The forest academy is at Miriabrunn, near Vienna. The collections belonging to the academy are fine.

PHIPPS.

SWITZERLAND.

In no country in Europe has the waste of forests been more rapid or destructive than in Switzerland, and in none, perhaps, has this improvidence been followed by more disastrous results. The woods, being considered common property, were uprooted, and the soil on the mountains, being exposed to the wash of the rains, was rapidly carried away, leaving broad areas of naked rock, from which the water would at once

sweep down the valleys in sudden and destructive inundations. The Autumn of 1868 is memorable on account of these floods. Public attention has, however, been thoroughly awakened, and active preparations are in progress to remedy the evils. The cantons which have charge of these operations have for some time, at great expense, been constructing works to control the streams and planting trees. The matter is now in Switzerland taken in hand by the national government.

FRANCE.

The forests of France, under the management of a government bureau, contain 7,500,000 acres. Of schools of forestry the French have, at Nancy, one of the best in the world, where pupils are instructed both experimentally and theoretically in all forest-learning, the collegiate home studies being constantly varied by excursions of parties of students under charge of professors to those forests where, at the time, most can be learned.

ITALY has established a forestry school, near Florence; Russia, two forest schools—one at St. Petersburg and one near Moscow. In Sweden forest regulations extend as far back as 1647, and then before that private owners were required to plant and protect from cattle two trees for each one cut.

PHIPPS.

DENMARK.

Denmark is one of the most poorly wooded countries of Europe, the percentage of woodland being now only 4.25 of the whole area. This small proportion is caused chiefly by the nakedness of the western part of Jutland, where the west winds have seconded the action of man in destroying the forests. Much of the wood, which at one time covered nearly the whole of Denmark, having been cut down to make way for agriculture, and to supply fuel and timber, a vast area thus bared has become a sandy, heathy desert.

Effective measures are now taken by the Danish Government to preserve the remains of the woodland, and to create new plantations. The state forest department permits only small portions of old forests to be cleared at a time, and insists on simultaneous planting of an equal area. The Danish forest school is at Copenhagen, and forms a branch of an agricultural college.—*Encyclopædia Britannica*.

HOW MOISTURE IS RETAINED BY FORESTS.

The whole forest in its natural state forms a reservoir admirably fitted to receive large supplies of moisture, to hold it for a lengthened time, and to part with it at intervals well calculated to benefit the vegetation of the surrounding country. The bed of the forest is a widely spread surface, piled thick with leaves, twigs, pieces of fallen branches, and remnants of decayed logs, covering another layer of the same substances in a state of partial decomposition, overlying yet another strata completely decomposed,—altogether forming a deep pot or hollow framework, penetrated with myriads of pipes, tubes, and aqueducts, and interspersed with millions of miniature logs, blocking

and holding in position the flow of water, until the humus below fully absorbs it; while the whole surface of the earth is crossed, recrossed, and crossed again by a checker-work of partially elevated roots, the box-like openings between which perform the same function. If we go below the surface, we shall find the solid earth beneath the mass of vegetable decomposition, pierced everywhere with upright and porous pillars of wonderful tubular structure—the large and perpendicular tap-roots which many trees possess pass deep into the solid, clayey strata, otherwise impermeable, and sending through the tritured earth which surrounds them a slow and steady supply of water to a thousand subterranean and spring-feeding channels, which, traveling away from the forests and under the cultivated fields, supply the great lower bed of moisture, that, continually rising, fertilizes the upper soil.

PHIPPS.

THE protection afforded by the forest against the escape of moisture from its soil by superficial flow and evaporation insures the permanence and regularity of natural springs, not only within the limits of the woods, but at some distance beyond its borders, and thus contributes to the supply of an element essential to both animal and vegetable life. As the forests are destroyed, the springs which flowed from the woods, and, consequently, the greater water-courses fed by them, diminish both in number and volume. This fact is so familiar in the United States and the British provinces that there are few old residents of the interior of those districts who are not able to testify to its truth as a matter of personal observation. My own recollection suggests to me many instances of this sort; and I remember one case where a small mountain spring, which disappeared soon after the clearing of the ground where it rose, was recovered about twenty years ago by simply allowing the bushes and young trees to grow up on a rocky knoll, not more than half an acre in extent, immediately above the spring. The ground was hardly shaded before the water reappeared, and it has ever since continued to flow without interruption. The hills of the Atlantic States formerly abounded in springs and brooks; but in many parts of these States, which were cleared a generation or two ago, the hill-pastures now suffer severely from drought, and in dry seasons furnish to cattle neither grass nor water.

MARSH: "*The Earth as Modified by Man.*"

EFFECTS OF THE CUTTING OF FORESTS ON WATER SUPPLY OF RIVERS.

Upon the territory of the commune of Labrugniere (a village of France) there is the forest of Montant, containing 4,524 acres, and owned by the commune. At the entrance of the forest, and along this brook, will be found several fulling mills, each requiring eight-horse power, and moved by water-wheels which work the belters of the machines. The commune of Labrugniere had long been noted for its opposition to the forest regulations, and the cutting of wood, together with the abuse of pasturage, had converted the forest into an immense waste, so that this great property would hardly pay cost of

guarding it, and afford a meager supply of wood for its inhabitants. While the forest was thus ruined and the soil denuded, the waters after each heavy rain swept down through the valley, bringing with them great quantities of gravel, the *débris* of which still encumber the channel of the stream. The violence of these floods was sometimes so great that they were compelled to stop the machines for some time. But in the Summer-time another inconvenience made its appearance. Little by little the drought extended, the flow of waters became insignificant, the mills stood idle, or could run only occasionally for a short time.

About 1840 the municipal authorities began to inform their population relative to their true interests, and under the protection of better supervision the work of replanting has been well managed, and the forest is to-day in successful growth. In proportion as the replanting progressed, the precarious use of the mills ceased, and the regulation of the water-courses was totally modified. They now no longer swell into sudden and violent floods, compelling the machines to stop; but the rise did not begin until six or eight hours after the rains began, they rose steadily to their maximum, and then subsided in the same manner. In short, they were no longer obliged to stop work, and the waters were always enough to run two machines and sometimes three. This example is remarkable in this, that all the other circumstances had remained the same, and therefore, we could only attribute to the reforesting the changes that occurred, namely, diminution of the flood at the time of rain and an increase in its flow during common times.

M. CANTEGRIL, *sub-inspector of forests, in Ami des Sciences.*

THE RAIN AND FORESTS.

There is nothing of greater importance to the agriculturist than rain at the proper season and in proper quantity; and science has demonstrated that the forests of a country are potent in the regulation of storms, the formation of clouds, and the descent of rain. Any thing which vitally affects the interests of the farmer and producer affects the whole State, and demands the earliest attention of the people's representatives.—*New York Report of the Commissioners of State Parks.*

FLOODS.

The reckless destruction of forests, so strongly condemned by many American writers, which has been practiced by their countrymen, is now bearing its fruits in the terrible Spring and Autumn floods which of late years have affected large portions of the United States. The Americans might spare much of their care for the channels of the Mississippi if they would restore the groves cut from the hills which feed its sources. To disforest a mountain slope is to devote the height to barrenness, the valley to flood, and both to parching drought when drought is most injurious.

PHIPPS.

WHEREVER the forests have disappeared, the Spring inundations of the rivers have acquired a frequency unknown before. It can not be disputed that the terrible destructive effects of the inundations of the Loire and the Vistula, of late years, must be in great part attributed to the excessive denudation of the forests.

SCHACHT, *Professor at the University of Bon, "Les Arbres."*

IMMENSE AMOUNT OF WATER GIVEN TO THE ATMOSPHERE BY TREES.

The amount of moisture given out by trees is immense. In some trees the upward rush of moisture from the roots is very powerful. The workmen in ship-yards frequently find in the center of a teak log a core of sand fifty or sixty feet long, an inch in diameter, and hardened to a marble-like consistency, which has been carried and deposited there by the sap in its upward course.

WASHINGTON ELM.

A few years ago a number of scientists of New England made a calculation as to the amount of water given to the atmosphere by the "Washington Elm," Cambridge, Mass. They calculated that the leaves of that tree would cover over 200,000 square feet of surface, and that they gave out every fair day during the growing season 15,500 lbs., or $7\frac{3}{4}$ tons, of moisture.

J. B. P.

HEALTHFULNESS OF FORESTS.

The influence of forests on the healthfulness of the atmosphere demands thoughtful attention. Plants imbibe from the air carbonic acid, and other gaseous and volatile products, exhaled by animals or developed by the natural phenomena of decomposition. These the trees, more than the smaller plants, absorb, and instead of them pour into the atmosphere pure oxygen, essential to the life of animals. The carbon, the very substance of wood, is taken from the carbonic acid thus absorbed. "Humid air," says Bequerel, "charged with miasmata, is deprived of them in passing through the forest."

R. W. EMERSON.

A MOUNTAIN cliff, a wall, or a forest, are the natural protection against the wind. In this respect the forest can not be without beneficial effect on the adjacent country; the young growth of trees flourishes, screened from the force of the wind, the arable land develops itself better, sands meet an impassable barrier, and the noxious influence of the dry winds is turned aside. It is, then, indisputable that the forests exercise a salutary influence on the temperature of a country. The sanitary condition of man and the domestic animals, as well as the growth of cultivated plants, depends on the climate of the locality. The fertility of a country depends on its supply of forest land; for on this depend the foundation of soil, the precipitation of dew, the fall of rain, the steady current of rivers, the mitigation of the evil influences of unhealthy winds, and the growth of vegetables in the fields and meadows.

SCHACHT.

TO ARREST a pestilence by quarantine, the State sternly interrupts trade, travel, and pleasure; but the far greater mortality from the increasing fickleness and cruelty of our climate can be arrested by the gentlest means. It is needed only that our broad States shall have one-fourth or one-fifth of their surface covered with trees—which, by the way, may be so distributed as to increase the value and producing power of lands. It is needed only that the road sides shall be well planted, that all hills shall be fixed forever with woods, that the rivers shall be fringed with appropriate species, and that woods shall be wood, in fact, and not struggling collections of the dying monarchs of the primeval forest. Along with a better climate will come not only the better health and longer lives, but forgotten springs will gush anew from the hills, the attenuated streams will fill their banks again—and yield us a better fish supply—and will cease to drown the valleys with floods after every rain.

DANIEL MILLIKIN.

MECHANISM OF A TREE.

A tree (and I beg my readers to follow this attempt at explanation closely—all depends upon it) receives its nourishment from the roots. These correspond to the mouth in the human frame. Now, as in the human frame the nourishment received is, after being supplied to the blood, exposed to the operation of air in the lungs before it is fit to give material to the body, so in a tree, the nourishment taken in at these tree mouths, the roots, passes to the lungs of the tree, and there, by contact with the air, is rendered fit to supply fresh material to the tree. These tree lungs are the leaves. This operation is affected by the passage upward from the soil around the roots, through the trunk, the branches, and every twig of the tree to the leaves, of a large quantity of water, containing in solution the nutriment for the tree. Arrived at the leaves, a process takes place which separates, by means of contact with the air, most of the water the roots had taken in, from the valuable nutriment, and throws off, in vapor, the surplus water into the air. At this time certain constituent portions of the air are utilized and mingled with the nourishment retained. This is all, now a small portion in comparison with what had arisen from the roots, yet retaining enough water to serve as a vehicle back, is returned toward the roots, depositing in its way, in leaf, bark, and root, what is needed there for the growth of the tree. In these, they undergo, especially in the bark, further fitting and digesting processes before they assimilate with the substance of the tree. The water which was retained to carry them down, being no longer needed, passes out at the roots. . . . In the back of the leaf are numerous stomates or mouths. . . . Of the extent of the provision made for evaporation by the leaves, some idea may be formed from a consideration of the number of *stomata* or stomates to be found in the leaves of plants. The number varies in different plants, for which variation a reason may be found in the different conditions of growth to which they are subjected in their several natural habitats. In the back of the leaf of the apple tree there are about twenty-four thousand stomates to the square inch. In the leaf of the

lilac there are a hundred and sixty thousand of them to the square inch. In the leaves of the cherry-laurel there are none on the upper surface of the leaf, but ninety thousand have been counted on the lower surface.

PHIPPS.

PROPORTIONATE AREA OF WOODLAND.

MEN need to be taught to plant trees, and their children to plant and love them. Owners of good lands in Maine or elsewhere will in the future learn that their bleak fields, if judiciously planted with wood to the extent of 40 per cent of area, will produce on the remaining 60 per cent more in all kinds of crops than the whole does now or can be made to do under any other possible course of treatment. Lands well sheltered can and do produce Winter wheat in Maine as well as on the new lands at the West. In accordance with this memorial, the State Legislature provided for exemption for twenty years from taxation of all cleared land on which forest trees had been successfully cultivated for three years, and maintained in a thriving condition thereafter.—*Committee on Agriculture.*

WHAT portion of the area of the State should be covered with forests? Economists estimate about twenty-five per cent as a suitable proportion; but this varies with the position, physical character, and commercial interests of the country under consideration. "I do not pretend that the whole of our farms should be planted in forest trees," says Hon. H. G. Joly, of Quebec; "that would be absurd. Our farms are generally too large for the small number of hands we employ; there are always some odd corners, idle strips, stony or damp patches which it does not pay to cultivate. Begin and plant forest trees there, suiting the tree to the nature of the soil—you will find some for every kind of soil. Once planted and fairly started, they will take care of themselves, give no trouble, and increase yearly in value. If every acre of ground were covered with valuable crops, one would try and get reconciled to the absence of trees, and bow to the iron rule of our age which converts every thing into cash. But what a small proportion of all that ground is used profitably! We can find plenty of spare room for growing forest trees; they are not only the most beautiful ornaments to a country, and the most useful product of nature, giving fuel, timber, shade, shelter, retaining moisture, and a protection against droughts, etc., etc., but, considering the question from a *strictly money-making* point of view, the culture of forest trees is perhaps the *best and safest investment* that can be made."

NOTES.

ROADSIDE TREES.

IN Germany, France, Italy, and many other countries of Europe, as has been seen, large forests are planted annually under the direct supervision of the several governments; but besides these and private forests, trees are planted in great numbers by the roadsides. At present the total length of public roads of France is 18,750 miles, of

which 7,250 miles are bordered with trees, while 4,500 miles are at present being planted or will shortly be planted. On the remaining 7,000 miles the nature of the soil does not admit of tree growth. The number of trees already planted by the roadsides in France amounts to 2,878,603, consisting principally of elm, poplar, acacia, ash, plane, sycamore, and limes. In Germany many thousands of miles of roads are shaded by trees; in some parts they are forest trees, in others fruit trees. I regret that I haven't the exact statistics.

ALL lovers of trees should hold in grateful remembrance the name of Hon. James Hillhouse, of New Haven, Connecticut, who beautified that city by planting with his own hand the elms that have since made it famous.

"I HAVE always admired," says Whittier, "the good taste of the Sokoki Indians around Sabago Lake, who, when their chief died, dug around a beech-tree, swaying it down, and placed his body in the rent, and then let the noble tree fall back into its original place, a green and beautiful monument for a son of the forest."

"PLANTING and pruning trees," Sir Walter said, "I could work at from morning till night. There is a sort of self-congratulation, a little tickling self-flattery in the idea that while you are pleasing and amusing yourself you are seriously contributing to the future welfare of the country."

FAMOUS TREES.

A few famous trees of this country, not named in the extract from the letter of the historian Lossing, are given here. The "Burgoyne elm," at Albany, N. Y.—This tree was planted on the day the British general, Burgoyne, was brought a prisoner into Albany, the day after the surrender. The weeping-willow in Copp's burying-ground, near Bunker Hill—This willow, grown from a branch taken from the tree that shaded the grave of Napoleon at St. Helena, now waves over that of Cotton Mather, so noted in Salem witchcraft. Copp's burying-ground is so near where the battle was fought that a number of grave-stones can be seen to-day which were pierced through by bullets fired by British soldiers in that battle. The ash-trees planted by General Washington at Mt. Vernon—These ashes form a beautiful row of immense trees, which are the admiration of all who visit the home of the "Father of his Country."

J. B. P.

THE CARY TREE—PLANTED BY ALICE AND PHOEBE CARY.

In 1832, when Alice was twelve years old, and Phoebe only eight as these little girls were returning home from school one day, they found a small tree, which a farmer had grubbed up and thrown into the road. One of them picked it up, and said to the other, "Let us plant it." As soon as said, these happy children ran to the opposite side of the road, and with sticks—for they had no other implement—the dug out the earth, and in the hole thus made they placed the treelet around it, with their tiny hands, they drew the loosened mold, an

pressed it down with their little feet. With what interest they hastened to it on their way to and from school, to see if it were growing; and how they clapped their little hands for joy when they saw the buds start and the leaves begin to form! With what delight did they watch it grow through the sunny days of Summer! With what anxiety did they await its fate through the storms of Winter, and when at last the long-looked for Spring came, with what feelings of mingled hope and fear did they seek again their favorite tree!

But I must not pursue the subject further. It is enough to know that when these two sisters had grown to womanhood, and removed to New York City, they never returned to their old home without paying a visit to the tree that they had planted, and that was scarcely less dear to them than the friends of their childhood days. They planted and cared for it in youth; they loved it in age. That tree is the large and beautiful sycamore which one sees in passing along the Hamilton turnpike from College Hill to Mt. Pleasant, Hamilton County, Ohio.

J. B. P.

"OLD LIBERTY ELM."

It was the custom of our New England ancestors to plant trees in the early settlement of our country, and dedicate them to liberty. Many of these "liberty trees," consecrated by our forefathers, are still standing. I remember, when a boy, the interest I felt in "Old Liberty Elm," that then stood in Boston. That old tree was planted by a schoolmaster long before the Revolutionary War, and dedicated by him to the independence of the Colonies. Around that tree, before the Revolution, the citizens of Boston used to gather to listen to the advocates of our country's freedom; around it, during the war, they met to offer up thanks and supplications to Almighty God for the success of the patriot armies; and, after the terrible struggle had ended, the people were wont to assemble from year to year in the shadow of that old tree to celebrate the liberty and independence of our country. It stood there till within a few years, a *living* monument of the patriotism of the citizens of Boston. The sight of that tree awakened patriotic emotions in every true American Heart. And when at last that old tree fell, the bells in all the churches of Boston were tolled, and a feeling of sadness spread over city and State. Even in Ohio, there were eyes that moistened with tears when the news came that "Old Liberty Elm" had fallen in a storm. Such was the veneration in which it was held.

J. B. P.

"WASHINGTON ELM."

Another of these "liberty elms" now stands in Cambridge, Mass. Under the shade of this venerable tree Washington first took command of the Continental army, July 3, 1775. How the affection of every lover of his country clings around that tree! What care has been taken of it, what marks of esteem have been shown it by the citizens of Cambridge, may be judged by those who have seen it standing, as it does, in the center of a great public thoroughfare, its trunk protected by an iron fence from injury by passing vehicles, which for more than a century have turned out in deference to this monarch of the Revolution.

J. B. P.

ARBOR DAY.

Teachers can easily interest their pupils in adorning the school grounds. With proper prearrangement as to the selection and procuring of trees, vines, or shrubs, Arbor Day may accomplish wonders. Many hands will make merry, as well as light, the work. Such a holiday will be an attractive occasion of social enjoyment and improvement. The parents should be persuaded to approve and patronize the plan. It tends to fraternize the people of a district, when they thus meet on common ground, and young and old work together for a common object, where all differences of rank, or sect, or party, are forgotten. The plantings and improvements thus made will be sure to be protected. They will remain as silent, but effective teachers of the beautiful to all the pupils, gradually improving their taste and character. Such work done around the school naturally extends to the homes. You improve the homes by improving the schools as truly as you improve the schools by improving the homes. "The hope of America is the homes of America." It has long been my ambition to improve the homes and home-life of our industrial classes and help them to realize that the highest privilege and central duty of life is the creation of happy homes, for the home is the chief school of virtue, the fountain-head of individual and national strength and prosperity. It is a worthy ambition to surround one's home and children with such scenes and influences as shall make the every-day life and labors brighter and happier, and help one to go sunny and singing to his work. Our youth should early share in such efforts for adorning the surroundings of their homes, and planting trees by the wayside. How attractive our roads may become by long avenues of trees. This is beautifully illustrated in many countries of Europe.

Arbor Day will become one of the institutions of the country, in which our boys and girls will take an eager share and genuine pleasure, and thus gain a liking for trees that will never be effaced. Nebraska has the honor of originating Arbor Day. Some ten years ago, at the request of its State Board of Agriculture, the governor appointed the second Wednesday in April as the day to be devoted to economic tree-planting, and it is claimed that twelve millions of trees were planted on that day. The successive governors have continued thus to recognize this day. The schools last Spring adopted the "Cincinnati plan" of planting "memorial trees."

The recent Spring floods and Summer droughts in Indiana, Ohio, and elsewhere, increasingly and now alarmingly destructive, are calling public attention to the cause and remedy as never before. The denudation of the hills and mountain sources of the springs is the leading cause of these freshets, and these can be remedied only by the extensive re-forestation of such lands. This great result, which must be the work of time, will be best accomplished by interesting the young, as well as the old, in tree-planting. The Arbor Day in schools will do immense good in this direction. We need to popularize and diffuse the sentiment of trees. This will best secure their propagation and protection. The frequency of forest fires is the common objection to economic tree-planting. But let the sentiment of trees be duly

cultivated, and they will be regarded as our friends, as is the case in Germany. The public need to understand that the interests of all classes are concerned in the conservation of forests. In Germany, Switzerland, Sweden, and other European countries, this subject is so taught in their schools that the people generally appreciate the value of trees and the need of protecting them. Hence an enlightened public sentiment is a better guardian of their forests than the national police.

HON. B. G. NORTHROP.

It is vital to the future welfare of our people that the reproduction of the forests should at once begin, not on a small scale or in few localities, but in large measures and co-extensive with our settlements. A broad statesmanship, in our national and State Legislature, should at once take up the subject, and deal with it year by year until the great work shall be adequately begun.

There can be no doubt of the beneficial influence of the forest areas equal in aggregate to one-fourth or one-third of the entire area of any extensive region. But however important climate effects may be in this connection—however desirable it may be that the crops and animal life of the farm should enjoy the benefits of forest influences and shelter, the need of extensive forest planting is important enough without taking into consideration its effect on atmospheric movements, temperature, and rainfall. The store, the dwelling, the shop, the factory, the railroad, the wharf, the warehouse—all these demand action; demand it in the name of domestic life, of farm economy, of commerce, of all the arts of our civilization. What we shall save in climate by preserving forest areas, or gain by their extension, is just so much to be enjoyed in addition to other compensations.

DR. JOHN A. WARDER.

DESTRUCTION OF FORESTS IN OHIO.

Ohio was once supposed to possess an unfailing supply of black walnut, but it has been shipped into other States and to foreign countries in such vast quantities that there is now scarcely a first-class tree of this kind to be found in her bounds. Much of it has been shipped to Austria. Since 1850 Ohio has suffered the destruction of a vast proportion of her forest area. Between the years 1853 and 1870 there were cleared over four million two hundred thousand acres—equal to one-sixth of the entire area of the State, and equivalent to the removal of the timber from an entire county each year. In his last message to the Ohio Legislature, Governor Bishop stated that during the years between 1870 and 1878 over four million five hundred thousand acres of timbered land had been cleared, which was nearly one-half the entire acreage of 1870. To restore the forests of the state to the condition of fifty years ago would require not less than two hundred years. Consequent upon the destruction of the forests many rivers have become diminished, among which Bryant named the Cuyahoga; and from the same cause—the destruction of our forests—other streams are drying up in Summer.

DAVID D. THOMPSON.

HOW TO PLANT TREES.

The following articles are taken from the writings of experienced tree-planters :

SOME THOUGHTS AND SUGGESTIONS ON TREE-PLANTING.

One of the first and most important considerations is the adaptation of the kind of tree to the soil which is to become its new home. It would be useless to plant a weeping willow or a swamp cypress on a high, dry, and stony hill. None of the genera which naturally select elevated and dry localities should be planted in low and swampy grounds. The constituents of the soil may vary greatly, but the constant supply of moisture in the new locality should vary but little from that in which the tree to be transplanted originally grew.

Any kind of tree whose stump sprouts freely after its trunk has been cut away will grow readily after transplanting, if the work has been properly done at the right time. The stump of the pine tree, and indeed of many of the coniferæ, rarely sprouts. Every one who has tried it, and has succeeded knows what a triumph it is to nurse into vigorous life and growth a pine tree or a hemlock tree after transplanting it.

The best time to plant trees is in the Spring before the buds have begun to swell. The top and branches should be well cut back. If this be done in the Fall, previous to transplanting, so much the better, as it saves the tree much vital force.

To insure the growth of a tree, it should be removed with the greatest of care, so as to keep intact as many of the rootlets and their terminal spongioles as possible. The sooner a tree be planted after its removal the better are its chances for growing. Within certain limits the smaller the tree and the larger the root the surer is it to grow.

The place a tree is to be set should be thoroughly prepared by spading up the soil to the depth of two feet or more;* then filling up with loose, rich soil to the proper height. The tree may now be set into the place prepared for it. The surface of the fine soil upon which you set the tree should be adapted to the inequality of the roots, so that the tree will stand erect and alone. While the fine soil is being sifted upon the roots, the tree should be churned up and down with a gentle motion, so there be left no empty space under and around the roots. A pail of water should now be poured on the soil about the roots (this should be done with watering can or sprinkler), so as to insure their close embrace and to afford some food for the fasting tree.

The soil should not be heaped up around the tree, but pressed down, but not too firmly, to the level of the surrounding surface.

The ash, the oak, the chestnut, the hickory, the walnut (black and white), the maple, and the tulip all respond readily to the above treatment.

A. D. BINKERD, M. D.

*NOTE.—In sandy soil or in drained ground this will do, but in clayey soil the hole must not be dug too deep, as it forms a reservoir of water which will often kill the tree.

TRANSPLANTING TREES.

Nearly every one who lives in the country at some time plants trees, but how few know just how to do it properly!

At the outset it is necessary to bear in mind that the tree is a living body, and that the process of removal interferes with its functions, and when it is displaced from the ground, causing an arrest of the circulation that is constantly going on between the tree and the soil, a severe shock is sustained. Every root-fiber destroyed lessens by so much the chances of success, and when a greater portion of these are gone, the tree is forced to depend on its own vitality to supply a new set of rootlets before growth can take place.

In the beginning bear in mind that it is important not to injure the roots and to preserve as many as possible, particularly the small ones, for these are what must be depended on to start the growth in the new life. Where trees are dug up to be removed a short distance, preserve all the roots if possible.

When the tree is out of the ground, exposure to the sun or drying winds will cause evaporation, which is very detrimental to the tree, and is a common cause of failure, and one which is often overlooked. If, however, the tree has become shriveled and dried, vitality may often be restored by burying the whole tree for a few days in moist soil; but it is far better not to have them get in condition to need any such remedy, which at best can not restore the tree to its original condition.

In excavating holes for planting, it is not necessary to dig very deep, unless for a tree with a tap-root; it may even be hurtful in a hard soil by affording a place to hold water under a tree to its injury. The roots of young trees grow near the surface, and the holes should be large enough to allow the roots to be extended their full length without cramping or bending.

In case it is very dry at the time of planting, it is a good plan to puddle the soil around the roots, always covering with dry earth. In this way moisture will be retained for a long time. Avoid too deep planting. The roots must not be placed beyond the action of the air; about the depth they were in before removed, or a very little deeper. When filling, press the earth from the first firmly, so as to leave no spaces, and have it compact about the roots. This latter point can not be too thoroughly attended to, and, of course, to do this well, the soil must be finely pulverized and no lumps be allowed in the filling. It will be necessary to use the hand to place the soil in spaces where the spade can not go.

The time of setting is best when the soil has settled in the Spring and become warm, so that trees not being removed begin to start. Earlier than this is not so well, for the sooner the tree begins to grow after being set the more likely to do well. We believe the proper time is the Spring, the best time for planting all kinds of trees, although early Fall planting is often recommended. Evergreens often succeed well planted in August; still we would rather risk them in the Spring, just as they are ready to grow. When you would plant early potatoes is a good time to plant trees. Evergreens are the most sensitive of any to drying while being removed, and if once allowed to become dry it is

all-day with them; no amount of pains or trouble can restore the lost vitality. For this reason they can be removed but short distances unless very carefully packed.

As more or less of the roots are removed or injured, it is necessary to prune the top when transplanted. This has generally been done by cutting all the branches back; but a better way is to remove a portion of the branches, leaving those strong ones that are in position to give the tree a well-shaped top. If all the branches are left, and the proportion between the tops and roots balanced by cutting all back, in after-growth some of these branches will require to be removed—an injury, perhaps, to the tree. This certainly will apply to fruit-trees. Sometimes trees for ornament or shade require to be cut back to make a thicker top or one more symmetrical. Large trees are removed in Winter with a large ball of earth attached to the root, and, though a heavy job, it is the only successful method of doing it. A trench can be dug at the proper distance around the tree, and filled with coarse litter previous to freezing, and also the holes to receive the trees, which will much facilitate the labor.

Small trees do better than large ones, and it is better to be to the trouble of taking care of them one or two years longer than to have them grow too long in the nursery row. Trees grown on good soil are better than from poor soil. They have more and better roots, and are in better condition to grow in their new location. Of course, it is not desirable that the soil where they have grown should be so rich as to produce such a growth that the wood will not properly ripen, but sufficient to make a strong, healthy tree. A tree in poor soil has weak, spindling, feeble branches, and, like a starved animal, takes a long time to recover, even when placed in better soil with better feeding.

After large trees are properly transplanted they should be staked, to prevent swaying around by the wind. When the ground is soft the movement of the top creates a displacement of the roots before they have taken any hold of the soil, resulting in injury or death to the tree. Mulching must not be dispensed with. Its object is to keep the soil moist until the roots obtain a strong hold. This may be overdone. Mulch for shade only. A large mass of decaying matter is more hurtful than beneficial. We can not avoid all risks in transplanting; but if these conditions, which we repeat, are followed, the risk will be very much lessened: Careful removal, protection from drying while out of the ground, setting in warm, well-pulverized soil, hard tramping the soil about the roots, judicious pruning, staking, and mulching.

All this requires care and labor; but it will make the difference between a thrifty, profitable orchard and a sickly and unprofitable one, or a fine-formed, well-grown shade or ornamental tree and a stunted, unhealthy specimen which has no beauty or gives no pleasure.—x.

If the trees are large, cut the top well back. The elm will grow if cut back to a pole; but if left with a full top the chances are that the tree will die, wholly or partially, leaving the living portion in unsatisfactory shape. A most common mistake is that of leaving too

much top. In case of the maple tree, however, the top should be lessened by thinning the branches, leaving the outline of the tree not much disturbed. This is necessary to secure the symmetrical oval shape which is the beauty of the maple. If great care be taken to secure all the roots, and as much earth as possible, a larger top than otherwise will be supported. If the tree stand upon a slope, take a spade and cut a narrow, leading channel in the turf, which will conduct more water to the roots of the tree, in case of a washing shower, than it would receive without this help.

PLANTING FORESTS.

The foregoing directions are for planting large trees for shade or ornament; the following are for planting forests for revenue:

To start forests of oak, hickory, walnut, and all other heavy-seeded trees, it is best and cheapest to plant the seeds just where the trees are to grow. One method of planting acorns and nuts, in practice by the Tharandt Forest Academy, of Saxony, is as follows: Take a stick sharpened at one end and shove it obliquely into the earth to the depth of two inches, not more (in hard or stony ground, the pick is used), put in the seed and press the soil above it down firmly with the foot. The seeds should be placed about three feet apart. For the catalpa, elm, maple, locust, evergreen, and all other light-seeded trees, it is best to plant the seed in beds, and transplant them three feet apart after one, two, or three years' growth.

These little trees can be planted very rapidly with a hoe or spade. Dig a small hole a little deeper than the roots; hold the plant vertically with the left hand, and with the right draw the soil carefully around the roots, and press it down with the hands and foot. If there are stones near by, place a few around the plant; they will help keep the surface moist, and prevent the weeds and grass from growing. In prairie lands, or where there is tough sod, the ground should be cultivated for three years, and then prepared as for wheat, and furrows may be run three feet apart, the seedlings laid in these furrows, and their roots covered with a plow. They need no other attention except to keep them free of weeds and to thin when necessary. For a full discussion of the subject of tree-planting and forest culture see Dr. F. B. Hough's report to our government for 1877. This exceedingly valuable book is, we believe, now out of print, but copies might be obtained from members of Congress of 1878-80.

FOREST CULTURE.

North of the Potomac, and east of the Ohio, and I presume in limited districts elsewhere, rocky, sterile wood-lands, costing from two dollars to fifty dollars per acre, according to locality, etc., are to-day the cheapest property to be bought in the United States, even though nothing were done with them but to keep out fire and cattle, and let the young trees grow as they will. Money can be more profitably and safely invested in lands covered by young timber than any thing else. The parent who would invest a few thousand for the bene-

fit of his children or grandchildren, while young, may buy woodlands which will be worth twenty times their present cost within the next twenty years. But better even than this would it be to buy up rocky, craggy, naked hill-sides, and eminences which have been pastured to death, and shutting out the cattle inflexibly, scratch these over with plow, mattock, hoe, or pick, as circumstances shall dictate; plant them thickly with chestnut, walnut, hickory, white oak, and the seeds of locust and white pine. Plant thickly and of divers kinds, so as to cover the ground promptly and choke out weeds and shrubs, with full purpose to thin and prune as circumstances shall dictate. Many farmers are averse to planting timber because they think nothing can be realized therefrom for the next twenty or thirty years, which is as long as they expect to live. But this is a grave miscalculation. Let us suppose a rocky, hilly pasture lot of ten or twenty acres, rudely scratched over as I have suggested, and thickly seeded with hickory nuts and white oak acorns only. Within five years it will yield abundantly of hoop-poles, though the better, more promising half be left to mature, as they should be; two years later another and larger crop of hoop-poles may be cut, still sparing the best, and thenceforth a valuable crop of timber may be taken from the land; for if cut at the proper season (October to March), at least two thrifty sprouts will start from every stump; and so that wood will yield a clear income each year, while the best trees are steadily growing and maturing. I do not advise restriction to those two species of timber, but I insist that a young plantation of forest trees may and should yield a clear income in every year after its fourth. HORACE GREELEY.

PROFITS OF FOREST CULTURE.

Many millions of dollars of American capital are invested in various enterprises which require a much longer time to yield profit or income and never pay nearly as well as systematic forest culture in the proper locality. Great fortunes are risked in wild speculations, in rail-roads which pay no dividends, in mining stocks which enrich only the agents, or brokers selling them, in lands and lots, which never attain the expected increase of value. But there is certainly no risk in forest culture. It produces an article of general and steadily increasing demand, and it can be calculated with almost mathematical certainty what profit may be derived from it and within what time.

The fact that it is highly remunerative in all Europe, where land is much higher in price than here, should justify the expectation that it will be profitable here. Our soil and climate produce a much larger variety of valuable timber than any European country. Several species of American trees are now cultivated there very extensively because of the superior qualities of the same and with a view to large profit therefrom. Our American hickory, black walnut, hard maple, and wild cherry for instance have none of their equals in Europe. They excite the envy of European carriage makers, furniture men, and manufacturers of tools. They are now largely imported from America, but the forest-men of Germany and France are earnestly engaged in raising them for the home market. Now it is well known that on this

continent forest trees grow much quicker and comparatively taller than in the eastern hemisphere. Here the most useful trees attain their full development in two-thirds of the time required in Europe, an advantage which can hardly be overestimated.

In the United States the consumption of timber *per capita* of the population is infinitely larger than in Europe, where no frame houses are built, where no new settlements are made, and where only a very small minority of the people are so situated that they may indulge in the luxury of fine furniture, buggies, and carriages. The parlor and sitting room furniture of any of our skilled mechanics, or small shop-keepers, made up from black walnut, cherry, or ash, would amply do for many a European officer of more than ordinary rank. In the rural districts of Spain, Italy, France, and Germany, hardly one out of a hundred persons is able to buy furniture of what we would call the most common kind. Here in America, the proportion of the use of timber for furniture and carriage work to its production has become really alarming. Within the past twenty-five years, the price of such timber has risen at a rapid rate and is still increasing. At any place not too distant from the ordinary transportation lines, every year's growth of a walnut, maple, or hickory tree represents a sure and respectable increase of the owner's capital.

The governments of Prussia, of several of the smaller German principalities, and of France, Austria, and Italy make forest-culture an unfailing source of a large yearly revenue. They find it profitable to buy tracts of inferior lands at prices equal to those of our best farming lands, and to stock them with timber. Many private land-owners there also derive a large yearly income from their forests without ever diminishing the area of the same. Forests there are divided in enough equal parcels for yearly cutting to give the trees sufficient time for development, and each parcel is immediately replanted after having been cleared. Excepting a few remote mountain districts, there are no more natural forests in Central Europe. It is not profitable to let any forest tree remain growing after it has attained full age, as the forester calls it. In Central Europe oak grows to perfection in eighty to one hundred and twenty, beech and pine in thirty to fifty years. But it is not always intended to raise trees to full size, and it is really not so remunerative.

Only the better class of wheat or meadow-land nets a greater average revenue in twenty-five years than well-managed forests—a fact which may at first sight seem incredible, but which is easily accounted for by comparison between the yearly expenses of grain culture and the trifling outlay required for the planting and maintenance of a forest after the trees have become two or three years old, and by taking in consideration the frequent failures of grain crops and the sure steadiness of the growth of trees. Planting may be done by children.

With all the advantages in our favor, why should forest-culture not be just as profitable in Ohio as in any part of Europe? Our supply of timber, fit for furniture, carriages, and even cooperage is almost entirely exhausted. The many timber lots distributed all over the state are very deceptive. Closer inspection will show that nearly all the good trees of larger size have long ago found their way to the saw-

mills, and that only the wind-twisted and heart-rotten ones have remained. Spontaneous growth is not regular enough to be really profitable. The future supply of good timber in Ohio will consequently depend mostly upon systematic forest culture, and those first engaging in it will find ample remuneration for any capital or labor employed. They may derive a fortune from comparatively poor land, unfit for grain crops and of little account for pasturage.

Locust, although being a very hard and solid timber, will make fence posts and pavement blocks in eight years from the seed, and large trees in twelve years. Its beautiful golden yellow color, mixed with jet black, makes it well adapted for elegant furniture. Catalpa, which makes the best railroad ties, grows even quicker. Hickory, now largely exported to Europe, and coming in great demand there, will prove exceedingly profitable. Sown in rows three feet apart, the nuts six inches apart, the young trees will grow up straight and slender. In five years thinning out may commence, and hoop-poles may be sold; the next thinning out will give material for spokes and buggy fills; and the best trees, left standing at proper distances, will make a fine forest in less than twenty years. Black Walnut is a slower grower, but it is getting so costly that it is worth while to think of planting it for speculation. Men below the age of thirty-five years will be able to reap a rich harvest from the cultivation of this valuable timber before they have passed the best time of life. A forty-acre lot of Black Walnut forest, now planted, will, in twenty-five years, make its owner independently wealthy, without requiring much outlay or labor. I am told that a gentlemen, who twenty years ago, planted twelve acres of land in Southern Indiana with pecan nuts, made a fortune by it, and created the source of a large yearly revenue.

But the most profitable branch of forestry is certainly the cultivation of oak for tan-bark on the renewal or Hackwald system. The acorns (about six bushels to the acre) will be laid six inches apart and in rows three feet distant. The young saplings taken out by thinning may be used to great advantage in planting. In twelve years (under very favorable conditions even sooner) the trees will be large enough for cutting and peeling. New sprouts will grow out from the roots in the same year, and the second growth will prove more thrifty than the first. The revenue from such forests may be called perpetual. In Europe vast tracts of second class land are forested in this manner, and many formerly unproductive estates have been made highly valuable by this very Hackwald culture. The bark of the young and middle-sized trees contains more tannin and is therefore of higher value than that taken from old trees. Here in Ohio the bark of the chestnut-leaved oak is preferred to all others and almost exclusively used. The tree is a more rapid grower than other varieties of oak and is satisfied with the poorest of soil.

One of the most intelligent and experienced of the Cincinnati tanners informs me that in Cincinnati alone 18,000 cords of tan-bark are used per year, and even a larger quantity in Louisville. Seven trees of a foot in diameter will furnish one cord. The chestnut-leaved oak never forms entire forests by spontaneous growth, but is interspersed among other timber. My informant counted the chestnut-leaved oak-trees on

a comparatively very well-stocked 15,000 acre lot in Pulaski County, Ky., and found them to number 3,500. At that rate the tanneries of Cincinnati and Louisville alone would every year use up the trees spontaneously growing on about 100,000 acres of land. The few years since the Cincinnati and Southern Railroad has been in operation a belt of fourteen miles on both sides of the road, and of about two hundred miles in length, has been almost totally depleted of that valuable variety of timber. The same gentleman ventures to predict that within twenty years from now the entire supply of chestnut-oak bark in the United States will be exhausted. The price now varies from \$14 to \$28 per cord, and is steadily increasing. From carefully prepared reports of the forestry departments of the several German States and of Austria, it appears that an acre of properly cultivated Hackwald of the age of twelve years will furnish from four to five cords of tan-bark, and about six thousand feet of timber (board measure) fit for posts and for wagon-makers' work. The revenue from the wood covers all the expenses of planting and managing, leaving a surplus.

Under such circumstances, the foresting of inferior lands in Ohio, Kentucky, or West Virginia could not fail to lay the foundation of wealth for those who would now engage in it. Large tracts of such lands are now lying waste. The income derived therefrom is now generally not sufficient to pay the taxes and interest on the original purchase money. By the means of forest culture, they might be easily turned into well-paying estates, and while they are now not much more than a public nuisance, they may become an ornament of the State and a great benefit for the general public.

EMIL ROTHE.

VILLAGE IMPROVEMENT SOCIETIES.

IN order to assist in organizing Village Improvement Societies, the following Constitution is given here. It is modeled after the constitution of the Laurel Hill Association of Stockbridge, Conn., and of the Wyoming and College Hill (Hamilton County, O.,) Village Improvement Societies.

ARTICLE I.

THIS Society shall be called the ——— Improvement Society.

ARTICLE II.

The object of this Society shall be to improve and ornament the streets and public grounds of the village by planting and cultivating trees, establishing and protecting grass-plats and borders in the avenues, and generally doing whatever may tend to the improvement of the village as a place of residence.

ARTICLE III.

The business of the Society shall be conducted by a board of nine directors—five gentlemen and four ladies, to be elected annually by the Society—who shall constitute the board. This board shall, from its own number, elect one President, two Vice-presidents, a Secretary, and Treasurer, and shall appoint such committees as they may deem advisable to further the ends of the Society.

ARTICLE IV.

It shall be the duty of the President, and, in his absence, of the senior Vice-president, to preside at all meetings of the Society, and to carry out all orders of the Board of Directors.

ARTICLE V.

It shall be the duty of the Secretary to keep a correct and careful record of all proceedings of the Society and of the Board of Directors, in a book suitable for their preservation, and such other duties as ordinarily pertain to the office.

ARTICLE VI.

It shall be the duty of the Treasurer to keep the funds of the Society, and to make such disbursements as may be ordered by the Board of Directors.

ARTICLE VII.

No debt shall be contracted by the Board of Directors beyond the amount of available funds within their control to pay it, and no member of this Society shall be liable for any debt of the Society beyond the amount of his or her subscription.

ARTICLE VIII.

Any adult person may become a member of this Society by paying two dollars (\$2.00) annually. Any person not of age who shall plant and protect a tree, under the direction of the Board of Directors, or shall pay the sum of \$1.00 annually, may become a member of this Society until of age, after which time their annual dues shall be increased to two dollars (\$2.00), the same as other adults.

ARTICLE IX.

The annual meeting of the Society shall be held during the first week of October, at such place as the Board of Directors may select, and a notice of such meeting shall be posted in prominent places through the village. Other meetings of the Society may be called by the Board of Directors when desirable.

ARTICLE X.

At the annual meeting, the Board of Directors shall report the amount of money received during the year, and the source from which it has been received; the amount of money expended during the year, and the objects for which it has been expended; the number of trees planted at the cost of the Society, and the number planted by individuals; and, generally, all acts of the Board that may be of interest to the Society. This report shall be entered on the record of the Society.

ARTICLE XI.

This Constitution may be amended with the approval of two-thirds of the members present, at any annual meeting of the Society, or at any special meeting called for that purpose, a month's notice of the proposed amendment, with its object, having been given.

PART SECOND.

SELECTIONS ON TREES

FOR

ARBOR DAY CELEBRATIONS.

"The Tree of the Field is Man's Wife."—BIBLE.

It is gratifying to see Ohio take such deep interest in tree-planting, which is beginning so strongly to attract public attention. Setting apart one day for this purpose and making it a general holiday will add attractiveness to utility, and give it a deeper hold on the popular heart. But the happiest thought of all was to make it a holiday for the public schools, and have the children practically take part in it and set out groups of trees for their favorite authors. You thus not only connect trees with the associations of childhood and their pleasantest holidays, but with authors from whom they receive their earliest and best impressions.

We sometimes forget that the highest aim of education is to form right character—and that is accomplished more by impressions made upon the heart than by knowledge imparted to the mind.

The awakening of our best sympathies—the cultivation of our best and purest tastes—strengthening the desire to be useful and good, and directing youthful ambition to unselfish ends—such are the objects of true education. Surely nothing can be better calculated to procure these ends than the holiday set apart for the public schools.

J. T. HEADLEY: *Extract from Letter.*

WHEN we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling-place for those who come after us if not for ourselves.

As you drop the seed, as you plant the sapling, your left hand hardly knows what your right hand is doing. But Nature knows, and in due time the Power that sees and works in secret will reward you openly. You have been warned against hiding your talent in a napkin; but if your talent takes the form of a maple-key or an acorn, and your napkin is a shred of the apron that covers "the lap of the earth," you may hide it there, unblamed; and when you render in your account you will find that your deposit has been drawing compound interest all the time.

OLIVER WENDELL HOLMES: *Extract from Letter.*

WE wish to wake up the people of Ohio to the value of their forests, and to prevent the fulfillment of the prediction of Bryant's Indian at the burial-place of his fathers:

But I behold a fearful sign,
 To which the white man's eyes are blind.
 Before these fields were shorn and tilled,
 Full to the brim our rivers flowed,
 The melody of waters filled
 The fresh and boundless wood.
 And torrents dashed and rivulets played,
 And fountains sported in the shade.
 These grateful sounds are heard no more,
 The springs are silent in the sun,
 The rivers, by the blackened shore,
 With lessening currents run;
 The realm our tribes are crushed to get
 May be a barren desert yet.

THE trees may outlive the memory of more than one of those in whose honor they were planted. But if it is something to make two blades of grass grow where only one was growing, it is much more to have been the occasion of the planting of an oak which shall defy twenty scores of Winters, or of an elm which shall canopy with its green cloud of foliage half as many generations of mortal immortalities. I have written many verses, but the best poems I have produced are the trees I planted on the hill-side which overlooks the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments and gives them, as it were, in prose translation, and Summer reclothes them in all the splendid phrases of their leafy language.

What are these maples and beeches and birches but odes and idyls and madrigals? What are these pines and firs and spruces but holy hymns, too solemn for the many-hued raiment of their gay deciduous neighbors?

OLIVER WENDELL HOLMES: *Extract from Letter.*

THE objects of the restoration of the forests are as multifarious as the motives which have led to their destruction, and as the evils which that destruction has occasioned. The planting of the mountains will diminish the frequency and violence of river inundations, prevent the formation of torrents; mitigate the extremes of atmospheric temperature, humidity, and precipitation; restore dried-up springs, rivulets, and sources of irrigation; shelter the fields from chilling and from parching winds; prevent the spread of miasmatic effluvia; and, finally, furnish an inexhaustible and self-renewing supply of material indispensable to so many purposes of domestic comfort, to the successful exercise of every act of peace, every destructive energy of war.

GEORGE P. MARSH, "*Man and Nature.*"

THE WAYSIDE INN—AN APPLE-TREE.

I HALTED at a pleasant inn,
 As I my way was wending—
 A golden apple was the sign,
 From knotty bough depending.

Mine host—it was an apple-tree—
 He smilingly received me,
 And spread his choicest, sweetest fruit,
 To strengthen and relieve me.

Full many a little feathered guest
 Came through his branches springing;
 They hopped and flew from spray to spray,
 Their notes of gladness singing.

Beneath his shade I laid me down,
 And slumber sweet possessed me;
 The soft wind blowing through the leaves
 With whispers low caressed me.

And when I rose, and would have paid
 My host so open-hearted,
 He only shook his lofty head—
 I blessed him, and departed.

FROM THE GERMAN.

I LOVE thee in the Spring,
 Earth-crowning forest! when amid the shades
 The gentle South first waves her odorous wing,
 And joy fills all the glades.

In the hot Summer time,
 With deep delight, the somber aisles I roam,
 Or, soothed by some cool brook's melodious chime
 Rest on thy verdant loam.

But O, when Autumn's hand
 Hath marked thy beauteous foliage for the grave,
 How doth thy splendor, as entranced I stand,
 My willing heart enslave!

WM. JEWETT PABODIE.

THE groves were God's first temples. Ere man learned
 To hew the shaft and lay the architrave,
 And spread the roof above them,—ere he framed
 The lofty vault to gather and roll back
 The sound of anthems; in the darkling wood,
 Amidst this cool and silence, he knelt down,
 And offered to the Mightiest solemn thanks
 And supplication.

WILLIAM CULLEN BRYANT.

FOREST SONG.

A song for the beautiful trees,
 A song for the forest grand,
 The garden of God's own hand;
 The pride of his centuries.
 Hurrah! for the kingly oak,
 For the maple, the forest queen,
 For the lords of the emerald cloak,
 For the ladies in living green.

For the beautiful trees a song,
 The peers of a glorious realm,
 The linden, the ash, and the elm,
 So brave and majestic and strong.
 Hurrah! for the beech tree trim,
 For the hickory staunch at core,
 For the locust, thorny and grim,
 For the silvery sycamore.

A song for the palm, the pine,
 And for every tree that grows,
 From the desolate zone of snows
 To the zone of the burning line.
 Hurrah! for the warders proud
 Of the mountain-side and vale,
 That challenge the lightning cloud,
 And buffet the stormy gale.

A song for the forest aisled,
 With its Gothic roof sublime,
 The solemn temple of Time,
 Where man becometh a child,
 As he listens the anthem-roll
 Of the wind in the solitude,
 The hymn that telleth his soul
 That God is the Lord of the wood.

So long as the rivers flow,
 So long as the mountains rise,
 May the forests sing to the skies,
 And shelter the earth below.
 Hurrah! for the beautiful trees!
 Hurrah! for the forest grand,
 The pride of his centuries,
 The garden of God's own hand.

PROF. W. H. VENABLE.

This song was written expressly for Cincinnati "Arbor Day," 1882.

THE wealth, beauty, fertility, and healthfulness of the country largely depend upon the conservation of our forests and the planting of trees.

JOHN GREENLEAF WHITTIER: *Extract from Letter.*

SONG TO THE TREES.

I.

HAIL to the trees!

Patient and generous, mothers of mankind,
Arching the hills, the minstrels of the wind,
Spring's glorious flowers, and Summer's balmy tents,
A sharer in man's free and happier sense.
From early blossom till the north wind calls
Its drowsy sprites from beech-hid waterfalls,
The trees bless all, and then, brown-mantled, stand
The sturdy prophets of a golden land.

II.

Eden was clothed in trees; their glossy leaves
Gave raiment, food, and shelter; 'neath their eaves
Dripping with ruby dew the flow'rets rose
To follow man from Eden to his woes.
The silver rill crept fragrant thickets through,
The air was rich with life, a violet hue
Tangling with sunshine lit the waving scene,
'Twas heaven, tree-born, tree-lulled, enwreathed in green.

III.

Where trees are not, behold the deserts swoon
Beneath the brazen sun and mocking moon.
Where trees are not, the tawny torrent leaps,
A brawling savage from the crumbling steep,
Where once the ferns their gentle branches waved,
And tender lilies in the crystal laved;
A brawling savage, plundering in a night,
The fields it once strayed through a streamlet bright.

IV.

What gardeners like the trees; their loving care
The daintiest blooms can deftly plant and rear.
How smilingly with outstretched boughs they stand
To shade the flowers too fragile for man's hand.
With scented leaves, crisp, ripened, nay, not dead,
They tuck the wild flowers in their moss-rimmed bed.
The forest nook outvies the touch of art,
The heart of man loves not like the oak's heart.

V.

O whispering trees, companions, sages, friends,
No change in you, whatever friendship ends;
No deed of yours the Eden link e'er broke;
Bared is your head to ward the lightning's stroke.
You fed the infant man, and blessed his cot,
Hewed from your grain; without you he were not,
The hand that planned you planned the future, too.
Shall we distrust it, knowing such as you?

VI.

And when comes Eden back? The trees are here,
 In all their olden beauty and glad cheer.
 Eden but waits the lifting of the night,
 For man to know the true and will the right.
 Whatever creed may find in hate a birth,
 One of the heavens is this teeming earth;
 "Of all its gifts but innocence restore,
 And Eden," sigh the trees, "is at your door."

JOSEPH W. MILLER.

This poem was written expressly for Cincinnati "Arbor Day," 1882.

THE OAK.

A GLORIOUS tree is the old gray oak;
 He has stood for a thousand years—
 Has stood and frowned
 On the trees around,
 Like a king among his peers;
 As around their king they stand, so now,
 When the flowers their pale leaves fold,
 The tall trees round him stand, arrayed
 In their robes of purple and gold.
 He has stood like a tower
 Through sun and shower,
 And dared the winds to battle;
 He has heard the hail,
 As from plates of mail,
 From his own limbs shaken, rattle;
 He has tossed them about, and shorn the tops
 (When the storm has roused his might)
 Of the forest trees, as a strong man doth
 The heads of his foes in fight.

GEORGE HILL: "*Fall of the Oak.*"

WHEN the sun begins to fling
 His flaring beams, me, goddess, bring
 To arched walks of twilight groves,
 And shadows brown, that Sylvan loves,
 Of pine or monumental oak.

MILTON.

'Tis beautiful to see a forest stand,
 Brave with its moss-grown monarchs and the pride
 Of foliage dense, to which the south wind bland
 Comes with a kiss as lover to his bride;
 To watch the light grow fainter, as it streams
 Through arching aisles, where branches interlace,
 Where somber pines rise o'er the shadowy gleams
 Of silver birch, trembling with modest grace.

WHAT conqueror in any part of "life's broad field of battle" could desire a more beautiful, a more noble, or a more patriotic monument than a tree planted by the hands of pure and joyous children, as a memorial of his achievements?

What earnest, honest worker with hand and brain, for the benefit of his fellowmen, could desire a more pleasing recognition of his usefulness than such a monument, a symbol of his or her productions, ever growing, ever blooming, and ever bearing wholesome fruit?

Trees already grown ancient have been consecrated by the presence of eminent personages or by some conspicuous event in our national history, such as the Elm tree at Philadelphia, at which William Penn made his famous treaty with nineteen tribes of barbarians; the Charter Oak at Hartford, which preserved the written guarantee of the liberties of the Colony of Connecticut; the wide-spreading Oak tree of Flushing, Long Island, under which George Fox, the founder of the Society of Friends or Quakers, preached; the lofty Cypress tree in the Dismal Swamp under which Washington reposed one night in his young manhood; the huge French Apple tree near Ft. Wayne, Ind., where Little Turtle, the great Miami chief, gathered his warriors; the Elm tree at Cambridge, in the shade of which Washington first took command of the Continental army on a hot Summer's day; the Tulip tree on King's Mountain battlefield in South Carolina, on which ten bloodthirsty Tories were hung at one time; the tall Pine tree at Ft. Edward, N. Y., under which the beautiful Jane McCrea was slain; the magnificent Black Walnut tree, near Haverstraw on the Hudson, at which General Wayne mustered his forces at midnight, preparatory to his gallant and successful attack on Stony Point; the grand Magnolia tree near Charleston, S. C., under which General Lincoln held a council of war previous to surrendering the city; the great Pecan tree at Villere's plantation, below New Orleans, under which a portion of the remains of General Packenham was buried, and the Pear trees planted, respectively, by Governor Endicott, of Massachusetts, and Governor Stuyvesant, of New York, more than two hundred years ago.

These trees all have a place in our national history, and are inseparable from it because they were so consecrated. My eyes have seen all but one of them, and patriotic emotions were excited at the sight. How much more significant and suggestive is the dedication of a young tree as a monument.

BENSON J. LOSSING, Historian: *Extract from Letter.*

THE project of connecting the planting of trees with the names of authors is a beautiful one, and one certain to exert a beneficial influence upon the children who participate in these exercises. The institution of an "Arbor Day" is highly commendable from its artistic consequences, and can not fail to result in great benefit to the climate and to the commercial interests of the country when it becomes an institution of general adoption.

PROF. B. PICKMAN MANN, son of Horace Mann: *Extract from Letter.*

A LITTLE of thy steadfastness,
 Rounded with leafy gracefulness,
 Old oak, give me—
 That the world's blast may round me blow,
 And I yield gently to and fro,
 While my stout-hearted trunk below,
 And firm-set roots unshaken be.

LOWELL.

FROM the earth's loosened mould
 The sapling draws sustenance and thrives;
 Though stricken to the heart with Winter's cold,
 The drooping tree revives.

The softly warbled song
 Comes from the pleasant woods, and colored wings
 Glance quick in the bright sun, that moves along
 The forest openings.

When the bright sunset fills
 The silver woods with light, the green slope throws
 Its shadow in the hollows of the hills,
 And wide the upland grows.

LONGFELLOW.

It is a great pleasure to think of the young people assembling to celebrate the planting of trees, and connecting them with the names of authors whose works are the farther and higher products of our dear old Mother Nature. An Oriental poet says of his hero:

"Sunshine was he in a Wintery place,
 And in midsummer coolness and shade."

Such are all true thinkers, and no truer monuments of them can exist than beautiful trees. Our word book is from the beech tablets on which men used to write. Our word Bible is from the Greek for bark of a tree. Our word paper is from the tree papyrus—the tree which Emerson found the most interesting thing he saw in Sicily. Our word library is from the Latin *liber*, bark of a tree. Thus literature is traceable in the growth of trees, and was originally written on leaves and wooden tablets. The West responds to the East in associating great writers with groups of trees, and a grateful posterity will appreciate the poetry of this idea as well while it enjoys the shade and beauty which the schools are securing for it.

MONCURE D. CONWAY: *Extract from Letter.*

IMPARTING to waste places more than their pristine beauty and associating the names of departed loved ones with our work is a poetic and sublime conception. It symbolizes our faith in a resurrection to a higher and better life when the hard struggles of this sin-cursed world are passed.

GEN. SAMUEL F. CARY: *Extract from Letter.*

THEY who dwell beside the stream and hill
 Prize little treasures there so kindly given:
 The song of birds, the babbling of the rill,
 The pure, unclouded light and aid of heaven.
 They walk as those who seeing can not see,
 Blind to this beauty even from their birth;
 We value little blessings ever free;
 We covet most the rarest things of earth.

But rising from the dust of busy streets
 These forest children gladden many hearts;
 As some old friend their welcome presence greets
 The toil-worn soul, and fresher life imparts.
 Their shade is doubly grateful when it lies
 Above the glare which stifling walls throw back;
 Through quivering leaves we see the soft blue skies,
 Then happier tread the dull, unvaried track.

ALICE B. NEAL: "*Trees in the City.*"

THE FOREST FLOWERS.

OUR forests are fast disappearing. In their sheltering shade and the rich mold of their annually decaying leaves, the greater number of our loveliest plants are found; and when the ax comes, that cruel weapon that wars upon nature's freshness, and the noble oak, the elm, the beech, the maple, and the tulip-tree fall with a loud crash in the peaceful solitude, even the very birds can understand that a floral death-knell sounds through the melodious wilderness.

A number of our choicest plants are threatened with extinction; for as the woods are cleared away these tender offsprings, the pretty flowers, which we so dearly cherish, will perish utterly. It is, therefore, well to prevent as far as possible the destruction of our native forests, as well as to plant forest trees, if for no other purpose than the preservation of the little helpless, blooming beauties that adorn our woodland shades.

GUSTAVUS FRANKENSTEIN.

OF the infinite variety of fruits which spring from the bosom of the earth, the trees of the wood are greatest in dignity. Of all the works of the creation which know the changes of life and death, the trees of the forest have the longest existence. Of all the objects which crown the gray earth, the woods preserve unchanged, throughout the greatest reach of time, their native character. The works of man are ever varying their aspect; his towns and his fields alike reflect the unstable opinions, the fickle wills and fancies of each passing generation; but the forests on his borders remain to-day the same they were ages of years since. Old as the everlasting hills, during thousands of seasons they have put forth, and laid down their verdure in calm obedience to the decree which first bade them cover the ruins of the Deluge.

SUSAN FENIMORE COOPER: "*Rural Hours.*"

THE monarch oak, the patriot of the trees,
Shoots rising up, and spreads by slow degrees;
Three centuries he grows, and then he stays
Supreme in state; and in three more decays.

DRYDEN.

THE young oak grew, and proudly grew,
For its roots were deep and strong;
And a shadow broad on the earth it threw,
And the sunshine linger'd long
On its glossy leaf, where the flickering light
Was flung to the evening sky;
And the wild bird sought to its airy height,
And taught her young to fly.

MRS. E. OAKES SMITH: "*The Acorn.*"

A TREE, to the thoughtful and loving student of nature, suggests ideas of beauty and perfection to which the mind can not be lifted, save by a process of wondering admiration.

FRANCIS GEORGE HEATH.

ALAS, in how many places is the forest which once lent us shade nothing more than a memory! The grave and noble circle which adorned the mountain is every day contracting. Where you come in hope of seeing life, you find but the image of death. O, who will really undertake the defense of the trees, and rescue them from senseless destruction? Who will eloquently set forth their manifold mission, and their active and incessant assistance in the regulation of the laws which rule our globe? Without them, it seems delivered over to blind destiny, which will involve it again in chaos! The motive powers and purificators of the atmosphere through the respiration of their foliage, avaricious collectors to the advantage of future ages of the solar heat, it is they which pacify the storm and avert its most disastrous consequences. In the low-lying plains, which have no outlet for their waters, the trees, long before the advent of man, drained the soil by their roots, forcing the stagnant waters to descend and construct at a lower depth their useful reservoirs. And now, on the abrupt declivities, they consolidate the crumbling soil, check and break the torrent, control the melting of the snows, and preserve to the meadows the fertile humidity which in due time will overspread them with a sea of flowers.

And is not this enough? To watch over the life of the plant and its general harmony, is it not to watch over the safety of humanity?

The tree, again, was created for the nurture of man, to assist him in his industries and his arts. It is owing to the tree, to its soul, earth-buried for so many centuries, and now restored to light, that we have secured the wings of the steam-engine.

Thank Heaven for the trees! With my feeble voice I claim for them the gratitude of man.

MADAME MICHELET: "*Nature, or the Poetry of Earth and Sea.*"

O, WHO is there within whose heart
 The love of noble manhood dwells,
 Who feels the thrill of pleasure start
 When other tongue the story tells

Of deeds sublime? with true eye sees
 The beautiful in art and thought—
 Dares stand before God's stately trees,
 Declaring that he loves them not?

Companions of our childhood days!
 Companions still, though grown we be!
 Still through thy leaves the light breeze strays,
 Whispering the same old songs to me.

Dear forest! down thy long aisles dim
 Soft sweeps the zephyr's light caress;
 Worthy indeed art thou of Him
 Who made thee in thy loveliness.

Long may thy graceful branches wave,
 Piercing with pride the balmy air;
 Harm ne'er would come if I could save—
 Fit objects of our love and care.

But though erect each noble form,
 As year by year rolls swift along
 Thou too, like man, must face the storm,
 And fall—or live to be more strong.

Forever upward, day by day,
 Patient thy growing branches turn;
 Nearer the heavens each year away—
 May we the simple lesson learn—

Though few our years or many be,
 It matters not the number given,
 If we can feel that, like the tree,
 Each year hath found us nearer heaven.

MAGGIE MAY WELSH, Lancaster, O.

Written for Cincinnati "Arbor Day" Celebrations.

WHAT a noble gift to man are the forests! What a debt of gratitude and admiration we owe for their utility and their beauty! How pleasantly the shadows of the wood fall upon our heads when we turn from the glitter and turmoil of the world of man! The winds of heaven seem to linger amid their balmy branches, and the sunshine falls like a blessing upon the green leaves; the wild breath of the forest, fragrant with bark and berry, fans the brow with grateful freshness; and the beautiful woodlight, neither garish nor gloomy, full of calm and peaceful influences, sheds repose over the spirit.

SUSAN FENIMORE COOPER: "*Rural Hours*."

THE FOREST.

I LOVE thee when thy swelling buds appear,
 And one by one their tender leaves unfold,
 As if they knew that warmer suns were near,
 Nor longer sought to hide from Winter's cold;
 And when with darker growth thy leaves are seen
 To veil from view the early robin's nest,
 I love to lie beneath thy wooing screen,
 With limbs by Summer's heat and toil oppress'd;
 And when the Autumn wind has stripped thee bare,
 And round thee lies the smooth, untrodden snow,
 When naught is thine that made thee once so fair,
 I love to watch thy shadowy form below,
 And through thy leafless arms to look above
 On stars that brighter beam when most we need their love.

JONES VERY: "*The Tree*."

THE heave, the wave, and bend
 Of everlasting trees, whose busy leaves
 Rustle their songs of praise, while ruin weaves
 A robe of verdure for their yielding bark,
 While mossy garlands, full and rich and dark,
 Creep slowly round them! Monarch of the wood,
 Whose mighty scepters sway the mountain brood,
 Shelter the winged idolaters of Day—
 And grapple with the storm-god, hand to hand,
 Then drop like weary pyramids away,
 Stupendous monuments of calm decay.

JOHN NEAL.

WELCOME, ye shades! ye bowery thickets, hail!
 Ye lofty pines! ye venerable oaks!
 Ye ashes wild! Resounding o'er the steep!
 Delicious is your shelter to the soul.

THOMSON.

MOST worthy of the oaken wreath
 The ancients him esteemed,
 Who, in a battle had from death
 Some man of worth redeemed.

DRAYTON.

THERE oft the muse, what most delights her, sees
 Long living galleries of aged trees,
 Bold sons of earth, that lift their arms so high,
 As if once they would invade the sky.
 In such green palaces the first kings reigned,
 Slept in their shade, and angels entertained;
 With such old councilors they did advise,
 And, by frequenting sacred groves, grew wise.

THE OAK.

WITH his gnarled old arms and his iron form,
 Majestic in the wood,
 From age to age, in sun and storm,
 The live-oak long has stood ;
 And generations come and go,
 And still he stands upright,
 And he sternly looks on the world below,
 As conscious of his might.

A song to the oak, the brave old oak,
 Who hath ruled in the greenwood long?
 Here's health and renown to his broad green crown,
 And his fifty arms so strong!
 There's fear in his frown, when the sun goes down,
 And the fire in the west fades out ;
 And he showeth his might on a wild midnight,
 When the storm through his branches shout.

Then here's to the oak, the brave old oak,
 Who stands in his pride alone ;
 And still flourish he, a hale green tree,
 When a hundred years are gone.

H. F. CHORLEY.

OH! come to the woodlands, 't is joy to behold,
 The new waken'd buds in our pathway unfold;
 For Spring has come forth, and the bland southern breeze
 Is telling the tale to the shrub and the trees,
 Which, anxious to show her
 The duty they owe her,
 Have decked themselves gayly in emerald and gold.

WELCOME, pure thoughts! welcome, ye silent groves!
 These guests, these courts, my soul most dearly loves ;
 Now the winged people of the sky shall sing
 My cheerful anthems to the gladsome Spring;
 And if contentment be a stranger,—then
 I'll ne'er look for it, but in heaven again.

SIR HENRY WOTTON.

THE oak, for grandeur, strength, and noble size,
 Excels all trees that in the forest grow ;
 From acorn small, that trunk, those branches rise,
 To which such signal benefits we owe.
 Behold, what shelter in its ample shade,
 From noontide sun, or from the drenching rain.
 And of its timber stanch, vast ships are made,
 To sweep rich cargoes o'er the watery main.

PROUD monarch of the forest !
 That once a sapling bough,
 Didst quail far more at evening's breath
 Than at the tempest now.
 Strange scenes have pass'd, long ages roll'd
 Since first upon thy stem,
 Then weak as osier twig, Spring set
 Her leafy diadem.

To thee but little reck's it
 What seasons come or go ;
 Thou lov'st to breathe the gale of Spring
 And bask in Summer's glow ;
 But more to feel the Wintry winds
 Sweep by in awful mirth,
 For well thou know'st each blast will fix
 Thy roots more deep in earth.

Would that to me life's changes
 Did thus with blessings come !
 That mercies might, like gales of Spring
 Cause some new grace to bloom !
 And that the storm which scattereth
 Each earth-born hope abroad,
 Might anchor those of holier birth
 More firmly on my God.

OH, ROSALIND ! these trees shall be my books,
 And in their barks my thoughts I'll character,
 That every eye which in this forest looks
 Shall see thy virtue witnessed everywhere.

SHAKESPEARE: "*As You Like It.*"

TEACHERS will please give the pupils the following account of the way in which Mr. Morris came to write the poem, "Woodman, Spare that Tree." The poem should then be memorized by all the pupils, and recited or sung on "Arbor Day." Mr. Morris, in a letter to a friend, dated New York, February 1, 1837, gave in substance the following account. Riding out of town a few days since, in company with a friend, an old gentleman, he invited me to turn down a little, romantic woodland pass, not far from Bloomingdale. "Your object?" inquired I. "Merely to look once more at an old tree planted by my grandfather long before I was born, under which I used to play when a boy, and where my sisters played with me. There I often listened to the good advice of my parents. Father, mother, sisters—all are gone; nothing but the old tree remains." And a paleness overspread his fine countenance, and tears came to his eyes. After a moment's pause, he added: "Do n't think me foolish. I don't know how it is: I never ride out but I turn down this lane to look at that old tree. I have a thousand recollections about it, and I always greet it as a familiar and well-remembered friend." These words were scarcely uttered when the old gentleman cried out, "There it is!" Near the tree stood a man with his coat off, sharpening an ax. "You're not going to cut that tree down, surely?" "Yes, but I

am, though," said the woodman. "What for?" inquired the old gentleman, with choked emotion. "What for? I like that! Well, I will tell you. I want the tree for firewood." "What is the tree worth to you for firewood?" "Why, when down, about ten dollars." "Suppose I should give you that sum," said the old gentleman, "would you let it stand?" "Yes." "You are sure of that?" "Positive!" "Then give me a bond to that effect." We went into the little cottage in which my companion was born, but which is now occupied by the woodman. I drew up the bond. It was signed, and the money paid over. As we left, the young girl, the daughter of the woodman, assured us that while she lived the tree should not be cut. These circumstances made a strong impression on my mind, and furnished me with the materials for the song I send you.

WOODMAN, spare that tree!
 Touch not a single bough!
 In youth it sheltered me,
 And I'll protect it now.
 'T was my forefather's hand
 That placed it near his cot;
 There, woodman, let it stand;
 Thy ax shall harm it not!

That old familiar tree,
 Whose glory and renown
 Are spread o'er land and sea,—
 And wouldst thou hack it down?
 Woodman, forbear thy stroke!
 Cut not its earth-bound ties;
 O, spare that aged oak,
 Now towering to the skies!

When but an idle boy
 I sought its grateful shade;
 In all their gushing joy,
 Here, too, my sisters played.
 My mother kissed me here;
 My father pressed my hand—
 Forgive the foolish tear;
 But let that old oak stand.

My heart-strings round thee cling,
 Close as thy bark, old friend;
 Here shall the wild-bird sing,
 And still thy branches bend.
 Old tree! the storm still brave!
 And, woodman, leave the spot;
 While I've a hand to save,
 Thy ax shall harm it not.

GEORGE P. MORRIS.

The following additional selections on trees were made by
Prof. W. H. Venable.

If I could put my woods in song,
And tell what's there enjoyed,
All men would to my garden throng,
And leave the cities void.

In my plot no tulips blow—
Snow-loving pines and oaks instead;
And rank the savage maples grow
From Spring's faint flush to Autumn red.

My garden is a forest ledge,
Which older forests bound;
The banks slope down to the blue lake-edge,
Then plunge to depths profound.

EMERSON: "*My Garden.*"

My fugitive years are all hasting away,
And I must erelong be as lowly as they;
With a turf on my breast and a stone at my head,
Ere another such grove shall arise in its stead.

WILLIAM COWPER.

OH! bear me then to vast embowering shades;
To twilight groves, and visionary vales;
To weeping grottoes, and prophetic glooms!
Where angel forms athwart the solemn dusk
Tremendous, sweep, or seem to sweep, along;
And voices, more than human, through the void,
Deep-sounding, seize the enthusiastic ear.

THOMSON: "*Autumn.*"

HERE Nature does a house for me erect,
Nature, the wisest architect,
Who those fond artists does despise
That can the fair and living trees neglect,
Yet the dead timber prize.

COWLEY.

O, WILLOW, why forever weep,
As one who mourns an endless wrong?
What hidden woe can lie so deep?
What utter grief can last so long?

Mourn on forever, unconsoled,
And keep your secret, faithful tree!
No heart in all the world can hold
A sweeter grace than constancy.

ELIZABETH A. ALLEN.

I CARE not how men trace their ancestry,
 To ape or Adam; let them please their whim;
 But I, in June, am midway to believe
 A tree among my far progenitors—
 Such sympathy is mine with all the race.

JAMES RUSSELL LOWELL.

NAY, doubt we not that under the rough rind,
 In the green veins of these fair growths of earth,
 There dwells a nature that receives delight
 From all the gentle processes of life,
 And shrinks from loss of being. Dim and faint
 May be the sense of pleasure and of pain,
 As in our dreams; but, haply, real still.

BRYANT: "*Among the Trees.*"

Now saucy Phœbus' scorching beams,
 In flaming Summer pride,
 Dry-withering waste my foamy streams,
 And drink my crystal tide.

Would, then, my noble master please,
 To grant my highest wishes,
 He'll shade my banks wi' tow'ring trees
 And bonnie spreading bushes.

Let lofty firs and ashes cool,
 My lowly banks o'erspread,
 And view, deep bending in the pool,
 Their shadows' wat'ry bed.

Let fragrant birks, in woodbines drest
 My craggy cliffs adorn;
 And, for the little songster's nest,
 The close embow'ring thorn.

ROBERT BURNS.

THE POPLAR FIELD.

THE poplars are felled; farewell to the shade,
 And the whispering sound of the cool colonnade.
 The winds play no longer and sing in the leaves,
 Nor Ouse on his bosom their image receives.

Twelve years have elapsed since I first took a view
 Of my favorite field, and the bank where they grew;
 And now in the grass, behold, they are laid,
 And the tree is my seat that once lent me a shade.

The blackbird has fled to another retreat,
 Where the hazels afford him a screen from the heat,
 And the scene where his melody charmed me before
 Resounds with his sweet flowing ditty no more.

TIME made thee what thou wast, king of the woods;
 And time hath made thee what thou art—a cave
 For owls to roost in. Once thy spreading boughs
 O'erhung the champaign; and the numerous flocks
 That grazed it, stood beneath that ample cope
 Uncrowded, yet safe sheltered from the storm.
 No flock frequents thee now. Thou hast outlived
 Thy popularity, and art become
 (Unless verse rescue thee awhile) a thing
 Forgotten, as the foliage of thy youth.

COWPER: "*Yardly Oak.*"

THE WOODLAND HALLO.

IN our cottage, that peeps from the skirts of the wood,
 I am mistress, no mother have I;
 Yet blithe are my days, for my father is good,
 And kind is my lover, hard by.
 They both work together beneath the green shade—
 Both woodmen, my father and Joe;
 Where I've listened whole hours to the echo that made
 So much of a laugh or hallo.

From my basket at noon they expect their supply,
 And with joy from my threshold I spring
 For the woodlands I love, and the oaks waving high,
 And Echo, that sings as I sing.
 Though deep shades delight me, yet love is my food
 As I call the dear name of my Joe;
 His musical shout is the pride of the wood,
 And my heart leaps to hear the hallo.

Simple flowers of the grove, little birds, live at ease,
 I wish not to wander from you;
 I'll still dwell beneath the deep roar of your trees,
 For I know that my Joe will be true.
 The trill of the robin, the coo of the dove,
 Are charms that I'll never forego;
 But, resting through life on the bosom of love,
 Will remember the Woodland Hallo.

ROBERT BLOOMFIELD.

IN June 't is good to lie beneath a tree
 While the blithe season comforts every sense,
 Steeps all the brain in rest, and heals the heart,
 Brimming it o'er with sweetness unawares.
 Fragrant and silent as that rosy snow,
 Wherewith the pitying apple tree fills up
 And tenderly lines some last-year robin's nest.

LOWELL.

MUCH can they praise the trees so straight and hy,
 The sayling pine, the cedar proud and tall;
 The vine-propp elme, the poplar never dry;
 The builder oake, sole king of forests all;
 The aspine good for staves; the cypresse funerall;
 The laurell, meed of mightie conquerors
 And poets' sage; the firre that weepeth still;
 The willow, worne of forlorne paramours;
 The eugh obedient to the bender's will;
 The birch for shaftes; the sallow for the mill;
 The mirrhe, sweet, bleeding in the bitter wound;
 The warlike beech; the ash for nothing ill;
 The fruitful olive, and the platane round;
 The carver holme; the maple, seldom inward sound.
 SPENSER: "*Faerie Queen*," *Canto I*.

HAIL, old patrician trees so great and good!
 Hail, ye plebeian under-wood!
 Where the poetic birds rejoice,
 And for their quiet nests and plenteous food
 Pay with their grateful voice.
 Hail, the poor Muses' richest manor-seat!
 Ye country houses and retreat,
 Which all the happy gods so love,
 That for you oft they quit their bright and great
 Metropolis above.

THE PINE TREE.

Old as Jove,
 Old as Love,
 Who of me
 Tells the pedigree?
 Only the mountains old,
 Only the waters cold,
 Only moon and star,
 My coevals are.
 Ere the first fowl sung,
 My relenting boughs among,
 Ere Adam wived,
 Ere Adam lived,
 Ere the duck dived,
 Ere the bees hived,
 Ere the lion roared,
 Ere the eagle soared,
 Light and heat, land and sea,
 Spake unto the oldest tree.

EMERSON: "*Wood Notes*."

THE PINE TREE.

The tremendous unity of the pine absorbs and moulds the life of a race. The pine shadows rest upon a nation. The northern peoples, century after century, lived under one or other of the two great powers of the pine and the sea, both infinite. They dwelt amidst the forests as they wandered on the waves, and saw no end nor any other horizon. Still the dark, green trees, or the dark, green waters jagged the dawn with their fringe or their foam. And whatever elements of imagination, or of warrior strength, or of domestic justice were brought down by the Norwegian or the Goth against the dissoluteness or degradation of the south of Europe were taught them under the green roofs and wild penetralia of the pine.

RUSKIN: "*Modern Painters.*"

THERE is a pleasure in a pathless wood.

BYRON.

THERE is a serene and settled majesty in woodland scenery that enters into the soul, and delights and elevates it, and fills it with noble inclinations.

WASHINGTON IRVING.

As the leaves of trees are said to absorb all noxious qualities of the air, and to breathe forth a purer atmosphere, so it seems to me as if they drew from us all sordid and angry passions, and breathed forth peace and philanthropy.

WASHINGTON IRVING.

THERE is something nobly simple and pure in a taste for the cultivation of forest trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy. It is, if I may be allowed the figure, the heroic line of husbandry. It is worthy of liberal, and free born, and aspiring men. He who plants an oak, looks forward to future ages, and plants for posterity. Nothing can be less selfish than this.

WASHINGTON IRVING.



